# Monmouthshire, Blaenau Gwent & Torfaen

## LDP Demographic Evidence

June 2019



edge analytics

Nexus | Discovery Way | University of Leeds | Leeds | LS2 3AA
0113 819 5087 | www.edgeanalytics.co.uk

# Acknowledgements

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

# Executive Summary

E.1 Blaenau Gwent County Borough Council (CBC), Torfaen County Borough Council (CBC) and Monmouthshire County Council are each seeking to formulate a new Local Development Plan (LDP), due for adoption in 2021. To inform the emerging LDPs, this report has presented a range of demographic and economic evidence, taking account of the latest available statistics and meeting the requirements of the Welsh Government (WG) Draft Development Plan Manual.

E.2 Since 2001, the three authorities have experienced very different population change profiles, with Monmouthshire recording a growth rate (10%) that is higher than the national rate (7%), whilst Torfaen and Blaenau Gwent are notably lower (+1.5% and -0.6% respectively). Whilst the direction and rate of population change is very different between the authorities, migration has been a key driver of change in each.

E.3 For Monmouthshire, net migration has been a key driver of population growth, whilst Blaenau Gwent has experienced a predominantly net out-migration flow. Net in-migration to Torfaen has been subject to an annual increase over the last four years, reflecting a rise in housing completions.

E.4 Whilst all areas have experienced growth in the 65+ age groups, it is Monmouthshire that has seen the highest rate of change, which when coupled with relatively little change in the 'working age' group, has resulted in an increasing imbalance between the two.

E.5 The latest WG 2014-based population projections capture a period of relatively low migration in its assumptions for all three authorities, resulting in low population change estimated over the plan period. These underpin the WG 2014-based household projections which estimate lower growth than the WG 2008-based equivalent, driven by assumptions on a larger average household size.

E.6 For comparison with the WG 2014-based principal and variant projections and using the latest statistics available, a range of demographic trend and dwelling-led scenarios have been developed. Under the 'PG' trend-based scenarios, a continuation of alternative migration histories (i.e. short term and long term) would point to higher levels of population and dwelling growth than estimated by the WG projections. Following the recent removal of the Severn Bridge Tolls, the potential implications of increased migration flows to the three authorities would result in notable population growth and a more youthful age profile, particularly in Monmouthshire which has the strongest migration linkages with the South West region.

E.7 Under the dwelling-led scenarios, the potential implications of a continuation of completion rates is considered. For Monmouthshire and Blaenau Gwent, a continuation of completions over the last five, ten and fifteen years would result in higher population growth than the WG 2014-based projection but lower than that estimated under a continuation of historical migration trends. Conversely, Torfaen has recorded notably higher completion rates over the last five years, which if continued would point to higher levels of population and employment growth.

E.8 In addition, evidence from Monmouthshire's economic growth strategies provides an indication of the range and scale of employment growth that the authority might seek to achieve over its LDP horizon.

The potential population and dwelling growth implications associated with the employment growth has been considered using key assumptions on economic activity rates, unemployment rates and commuting ratio to link demographic and economic change. Variations in each of these key assumptions influences the relationship between demographic and economic change.

E.9 The relationship between population change and dwelling growth has been estimated using assumptions from the WG 2014-based household projection model. The potential implications of higher household formation have also been considered using assumptions from the WG 2008-based household model (Figure 1).

E.10 For Blaenau Gwent, the population change range of -3% to +7% (WG 2014 Principal and PG Long Term Adjusted scenarios respectively) has an associated average annual dwelling growth of 19–226 dwellings per annum (dpa). Under the WG 2008-based household model assumptions, the average annual dwelling growth range increases to 107–338 dpa over the 2018–2033 plan period. The trend-based scenarios present the upper end of the population and dwelling growth range, whilst the WG 2014-based projections estimate population decline.

E.11 For Monmouthshire the demographic, dwelling-led and employment-led scenarios result in a population change range of -4% (Net Nil scenario) to +22% (Employment-led RSC Higher scenario). This results in an average annual dwelling change range of -12 dpa to +677 dpa. Under the WG 2008-based household assumptions, the average annual dwelling growth range increases to 76–871 dpa over the plan period. The employment-led Radical Structural Change (RSC) scenarios result in higher population growth, driven by larger net inflows required to support the forecast change in employment. Changes to the commuting ratio ('CR Reducing' and 'CR Balanced' variants) retains more of the resident labour force to fulfil the employment growth, thus resulting in lower net in-migration and population change. The trend-based scenarios sit within the population and dwelling growth range, but remain higher than estimated under the WG 2014 Principal and WG 2014 (10yr Average Migration) variant projections.

E.12 For Torfaen, population change ranges from 0% to +8%, with an associated dwelling growth range of 81–275 dpa over the plan period. This increases to an average annual dwelling growth of 138–347 dpa under the WG 2008-based household projections. Capturing the latest evidence in the migration assumptions, the demographic trend-based scenarios estimate higher growth than the WG 2014 projections. A continuation of higher housing completions over the last five-years indicates higher population change (7%) than that estimated by a longer-term trajectory.

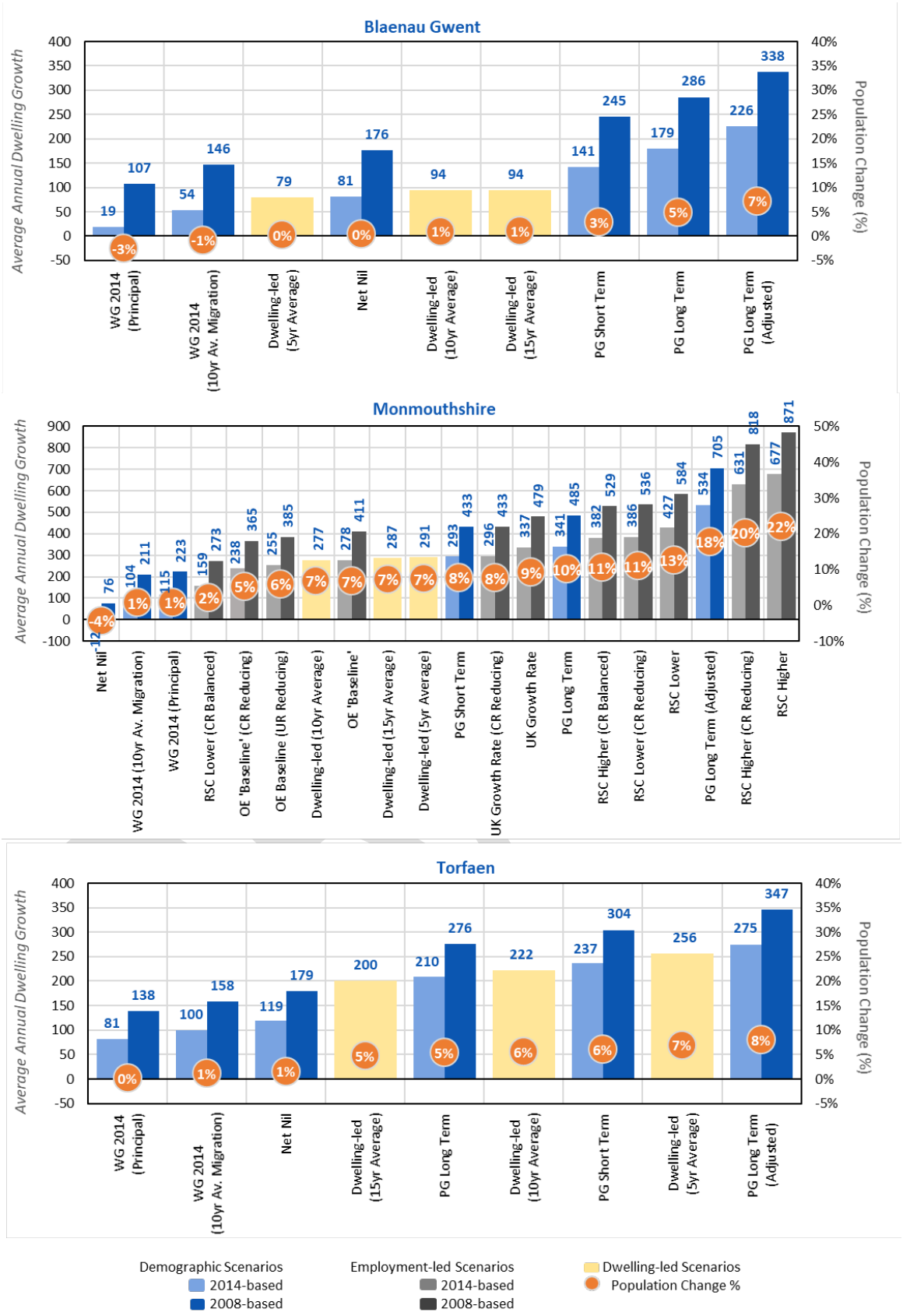



Figure 1: Average annual dwelling growth 2018–2033
*(Not on a consistent scale to highlight variation within each authority)*

# Glossary

| | Abbreviation | Definition |
|---|---|---|
| Communal Establishments | - | Communal establishments include prisons, residential care homes and student halls of residence. |
| Commuting Ratio | *CR* | The balance between the number of resident workers in the area and employment in the area. |
| Components of Change | - | Refers to the key drivers of population change; births, deaths and migration. |
| Local Development Plan | *LDP* | A Local Development Plan outlines proposed future policies and targets for a Unitary Authority in Wales. These often cover a fifteen-year period and take account of national planning policy in Wales. |
| Membership Rates | - | Published as part of the WG household projections. Membership rates are used to calculate the proportion of the household population by age group and household category. |
| Mid-Year Estimate | *MYE* | Population estimates and components of population change that are released annually by the Office for National Statistics. |
| National Development Framework | *NDF* | Due to replace the current Wales Spatial Plan, providing direction and support in planning for economic, transport, housing, energy and cultural strategies. |
| Natural Change | - | The balance between the number of births and deaths. |
| Office for National Statistics | *ONS* | National institute who publish statistics at a national, regional and local level. |
| Old Age Dependency Ratio | *OAD* | The ratio of the population aged 65+ relative to the population aged 15–64. The higher the ratio, the greater share of population aged 65+ relative to the younger 'working age' (15–64) population. |
| Output Area | *OA* | The geographical unit for which Census data is published. |
| Oxford Economics | *OE* | Provide economic forecasting |
| POPGROUP | *PG* | The cohort component model used to develop a range of forecasts using assumptions on fertility, mortality and migration. |
| Radical Structural Change | *RSC* | Economic scenario developed for Monmouthshire in the 'Economies of the Future Report'. |
| Unemployment Rate | *UR* | The percentage of people unemployed relative to the total labour force. |
| Vacancy Rate | - | The ratio between households and dwellings, taking account of vacant properties, second homes and holiday accommodation. |
| Welsh Government | *WG* | The devolved government for Wales. |
| Welsh Government Draft Development Plan Manual | | Provides draft guidance for authorities preparing Local Development Plans. |
| WG Household Projections | - | Household projections published by Welsh Government for all local authorities in Wales. These are underpinned by the population projections and provide assumptions on membership rates, average household size and population 'not-in-households'. |
| WG Population Projections | - | Population projections published by the Welsh Government for all local authorities in Wales, providing key assumptions on births, deaths and migration. |

# Contents

# 1 Introduction

## Requirements

1.1 Blaenau Gwent County Borough Council (CBC), Torfaen County Borough Council (CBC) and Monmouthshire County Council adopted their Local Development Plans (LDPs) in 2012[1], 2013[2] and 2014[3] respectively. These were underpinned by the Welsh Government (WG) 2008-based population and household projections, and provided a flexibility allowance of approximately 10–20% on housing.

1.2 Over the 2006–2021 plan period, Blaenau Gwent's LDP made provision for +3,907 dwellings whilst the LDP for Torfaen identified a dwelling growth target of +4,700. Monmouthshire's LDP outlined provisions for +4,950 dwellings over the 2011–2021 plan period (including a 10% flexibility allowance), with +10 dwellings per annum allocated to the Brecon Beacons National Park.

1.3 Following a review of their adopted plans in 2018, the Councils have requested a range of population, housing and employment growth evidence to inform their emerging LDPs, due for adoption in 2021. This report considers the WG projections, the Councils' existing economic strategies and Sustainability Appraisals (SA), and conforms to the WG Draft Development Plan Manual[4]. In addition, due consideration is given to the emerging National Development Framework (NDF)[5] and recently published Housing Need Assessment[6] for regions across Wales.

1.4 The economic analysis draws on Monmouthshire's 'Economies of the Future' report, published by BE Group, Hatch and perConsulting in December 2018[7]. It is noted that the economic analysis for Blaenau Gwent and Torfaen will be subject to an update, following the completion of their respective Employment Land Reviews later this year.

## Approach

1.5 The analysis presented in this report considers the impact of demographic, housing and employment change in the three Unitary Authorities (UAs); Blaenau Gwent, Monmouthshire and Torfaen. To inform the analysis and forecasting presented in this report, the latest evidence has been drawn from a range of sources, including:

[1] https://www.blaenau-gwent.gov.uk/fileadmin/documents/Resident/Planning/Written_Statement__without_appendices_.pdf
[2] https://www.torfaen.gov.uk/en/Related-Documents/Forward-Planning/Adopted-Torfaen-LDP-Writen-Statement.pdf
[3] https://www.monmouthshire.gov.uk/app/uploads/2017/05/Adopted-Local-Development-Plan-with-PDF-tags.pdf
[4] Welsh Government (November 2018). Development Plans Manual Edition 3. Draft Manual (Informal Consultation)
[5] https://gweddill.gov.wales/topics/planning/national-development-framework-for-wales/?lang=en
[6] https://gov.wales/docs/statistics/2019/190130-estimates-of-housing-need-wales-national-regional-level-2018-based-en.pdf
[7] http://democracy.monmouthshire.gov.uk/documents/s19318/1a%20Appendix%20B%20-%20Economies%20of%20the%20Future%20Strategic%20Direction%20Report%202018.pdf

- Mid-year population estimates and components of change to 2017 from the Office for National Statistics (ONS)
- Historical housing completions from Council's statistics and StatsWales
- WG 2008-based and 2014-based population and household projections
- Vacancy rate statistics from the 2011 Census
- Travel-to-work statistics from the 2011 Census and WG
- Unemployment rate statistics to 2017 (ONS model-based estimates)
- Labour market participation forecasts from the Office for Budget Responsibility (OBR) July 2018 report
- Oxford Economics and 'Economies of the Future' employment growth forecasts for Monmouthshire

1.6 Edge Analytics has used its POPGROUP (PG) technology to develop a range of demographic, housing and employment growth scenarios for Blaenau Gwent, Monmouthshire and Torfaen. Under each of the scenarios, historical statistics for the 2001–2017 time period have been included, with results presented for the 2018–2033 plan period.

1.7 The scenario analysis is prefaced with a demographic profile of each of the three UAs, illustrating their geographical context, components of population change (births, deaths, and migration) and historical patterns of international and domestic migration (Section 2). Housing growth completions and the changing age profile of the population is also considered, comparing to national trends where appropriate.

1.8 The starting point of the scenario analysis is the WG 2014-based population and household projections for the three UAs (Section 3). Alternative scenarios using variant migration assumptions and past housing completion rates are developed and compared to the WG 2014-based 'benchmark' scenario (Section 4). Sensitivity analysis on higher household formation under the demographic scenarios is also considered, using assumptions from the WG 2008-based household projection model.

1.9 Section 5 presents the potential employment growth that could be supported by the demographic and dwelling-led scenarios. Key assumptions on economic activity, unemployment rates and commuting ratio link demographic and economic change. For Monmouthshire, employment growth outcomes are presented for comparison and contrast with existing economic strategies.

1.10 Section 6 summarises the evidence, providing the three Councils with a suite of population, housing and economic growth outcomes to consider in the formulation of their new LDPs.

1.11 Appendix A presents the scenario outcomes for Monmouthshire *excluding* its geographical area that falls within the Brecon Beacons National Park. Appendix B includes detail on data inputs and assumptions used to configure the range of scenarios presented in this document.

# 2 Historical Profile

## Geography

2.1 With a total population of 255,500 in 2017, the combined area of Monmouthshire, Blaenau Gwent and Torfaen is home to approximately 8.2% of Wales' population[8]. Located in South-East Wales, the three districts border Newport to the south, Caerphilly to the west, and Powys and the Brecon Beacon National Park to the north (Figure 2). Monmouthshire borders England, with Herefordshire and Forest of Dean to the east, and Bristol and the surrounding authorities available via the Severn crossings. The Brecon Beacons National Park intersects all three authorities; however, a negligible proportion of Torfaen and Blaenau Gwent's population reside in the National Park boundary[9], whilst approximately 8% of Monmouthshire's population reside in the National Park.

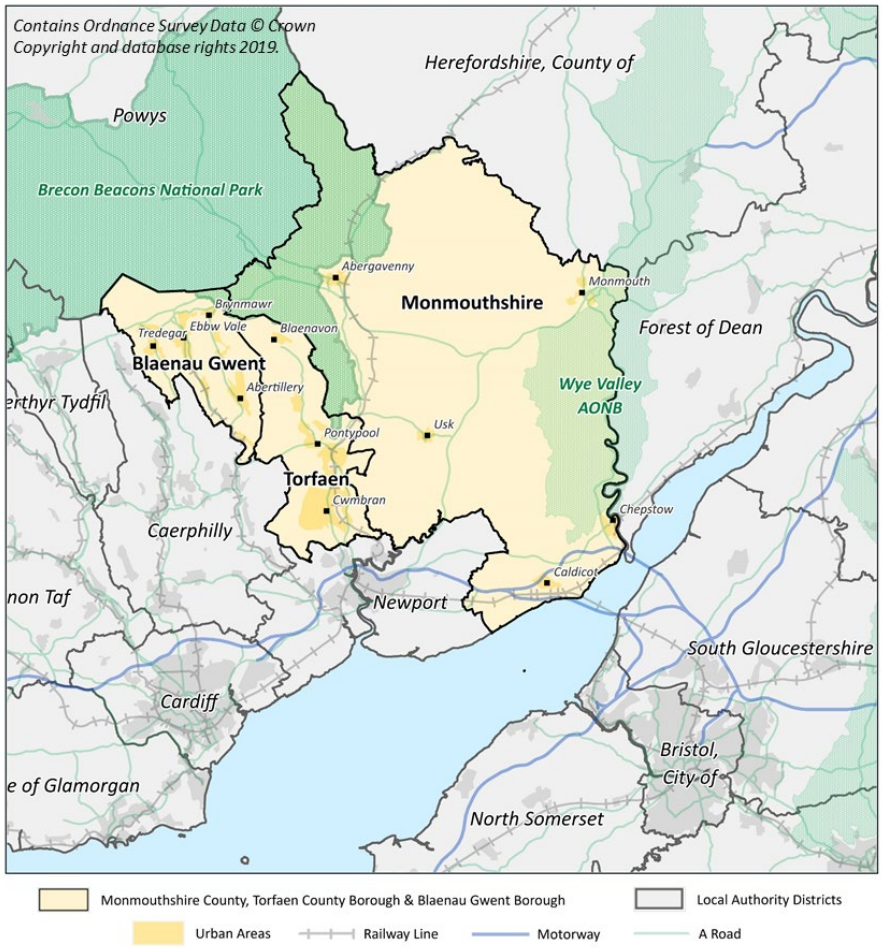
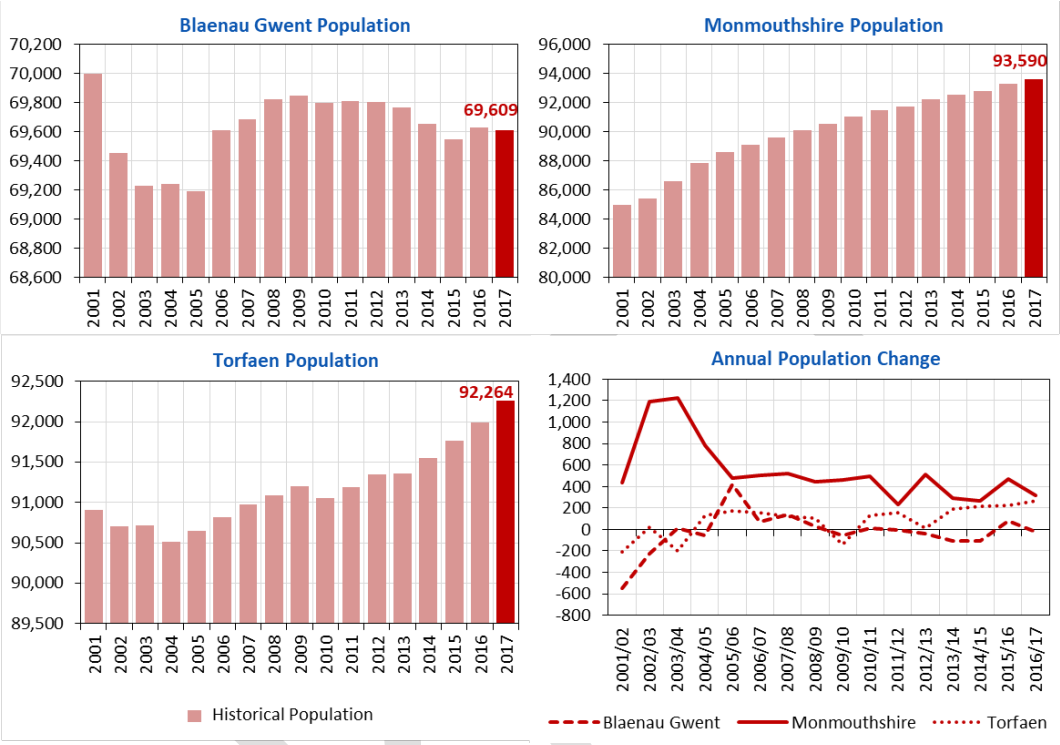



Figure 2: Context map

[8] Of Wales' total population in 2017, 3% were resident in Monmouthshire, 3% in Torfaen and 2% in Blaenau Gwent.
[9] Less than 0.05% of Blaenau Gwent and Torfaen's respective populations.

# Population Growth Profile

2.2 Over the 2001–2017 historical period, Monmouthshire has recorded the most notable growth of +8,600 persons (+10%), with a large proportion of this growth evident prior to 2004 (Figure 3). Torfaen has recorded a small increase of +1,352 persons (+1%) since 2001, whilst population decline of -391 persons (-1%) has been recorded in Blaenau Gwent over the sixteen-year historical period (Figure 3).




| | 2001 | 2017 | Change | Change % |
|---|---|---|---|---|
| Blaenau Gwent | 70,000 | 69,609 | -391 | -1% |
| Monmouthshire | 84,984 | 93,590 | 8,606 | 10% |
| Torfaen | 90,912 | 92,264 | 1,352 | 1% |

Figure 3: Population change 2001–2017 (Source: ONS, MYEs)
*(Not on a consistent scale to highlight variation within each authority)*

2.3 Of the 22 Unitary Authorities in Wales, Monmouthshire has recorded the fourth highest population growth rate since 2001, following Cardiff (17.0%), Bridgend (12.1%) and Pembrokeshire (10.3%) (Figure 4). Monmouthshire's population growth rate exceeds the national growth rate (7.4%), whilst Torfaen and Blaenau Gwent are substantially below this figure.

2.4 In neighbouring authorities, Newport records a similar rate of population growth to Monmouthshire, whilst Caerphilly (6.6%) and Powys (4.8%) record a *lower* rate of population growth than Monmouthshire, but notably *higher* than Torfaen and Blaenau Gwent.

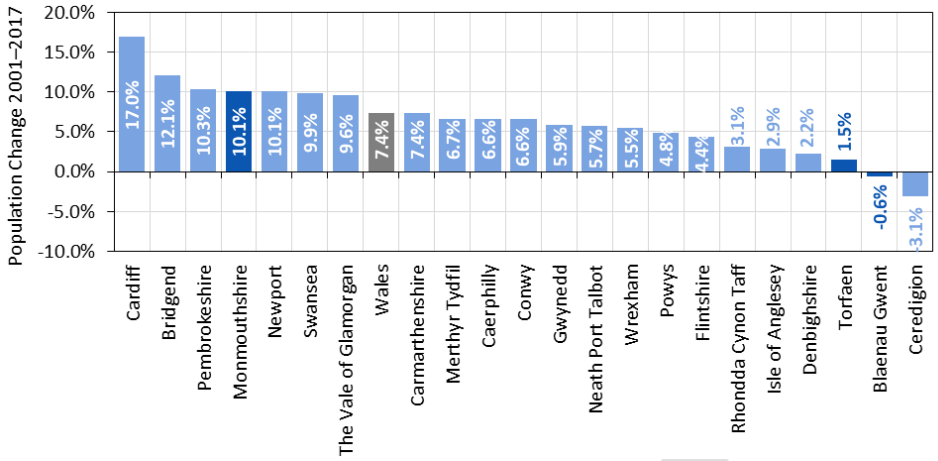



Figure 4: Population change Wales 2001–2017 (Source: ONS, MYEs)

2.5 Between the 2001 and 2011 Censuses, population was estimated using a combination of births, deaths, internal and international migration statistics applied to the previous year's population estimate. Following the 2011 Census, the 2002–2010 mid-year population estimates (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 Blaenau Gwent and Monmouthshire over the 2001–2011 period was +1,238 and +2,902 respectively, whilst a smaller adjustment was made for Torfaen (+150).

2.6 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. In March 2018, the ONS updated the 2012–2016 MYEs providing a revised estimate of international migration flows for districts in England and Wales. These revisions increased Monmouthshire's population by +433, with a smaller adjustment made to Torfaen and Blaenau Gwent (-58 and +2 respectively).

2.7 Population change in the three authorities has been driven by a combination of natural change (i.e. the balance between births and deaths), net international and internal migration, with the latter having a significant impact on the annual variation of population change in Monmouthshire, Blaenau Gwent and Torfaen (Figure 5).

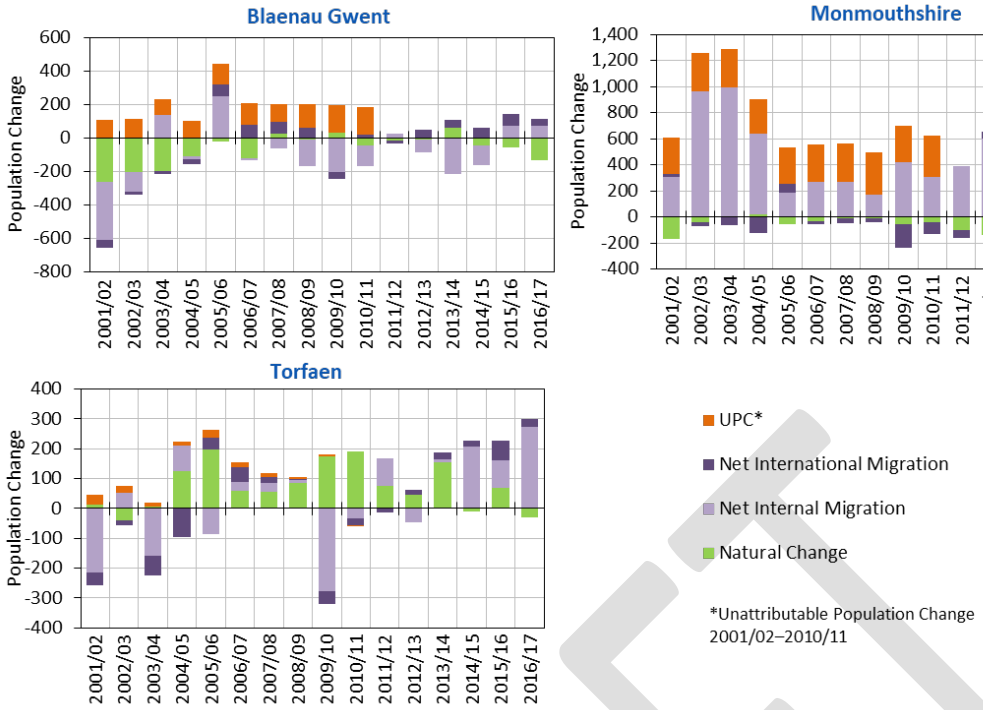



Figure 5: Components of Population Change 2001/02–2016/17 (Source: ONS, MYEs)
*(Not on a consistent scale to highlight variation within each authority)*

2.8 The three Unitary Authorities (UAs) have very different demographic profiles. The annual variation in population change recorded for Blaenau Gwent has predominantly been driven by net internal migration, ranging from -349 in 2001/02 to +246 in 2005/06 (Figure 5). Over the full 2001/02–2016/17 period, an average annual net outflow of -57 has been recorded, however the last two years have recorded a net inflow. With the inclusion of UPC in net international migration, an average annual inflow of +45 has been recorded, notably reducing post-2011. Whilst the annual negative impact of natural change reduced over the 2005/06–2013/14 period (driven by a rise in the number of births), a sharp fall in the number of recorded births over the last two years has resulted in a larger negative impact of natural change (Figure 6).

2.9 Population growth in Monmouthshire has historically been driven by large net internal migration flows (i.e. a greater number of people moving to Monmouthshire from the rest of the UK than moving out) (Figure 5). Since 2001/02, net internal migration flows have averaged +458 per annum. With the inclusion of UPC in net international migration, an annual positive impact has been recorded, averaging +169 per annum but reducing significantly post-2011. Conversely, natural change has had a consistently negative impact on population change in Monmouthshire, with the number of deaths exceeding the number of births in all years. Population decline due to natural change has increased in the latest years, driven by a rise in deaths operating in tandem with a fall in births (Figure 6).

2.10 Whilst net internal migration has had a varied impact on population change in Torfaen since 2001/02, the last three years have recorded large net inflows to the authority (averaging +191 pa). Conversely, net international migration is recorded to have had a smaller impact on population change (averaging +7 pa 2001/02–2016/17). Prior to 2014/15, natural change was the dominant driver of population

growth in Torfaen, with the number of births exceeding the number of deaths in all years (except 2002/03). Over the last three years, a steady rise in deaths coupled with a fall in births has reduced the impact of natural change on population growth, with a negative impact recorded in 2016/17 (Figure 6).

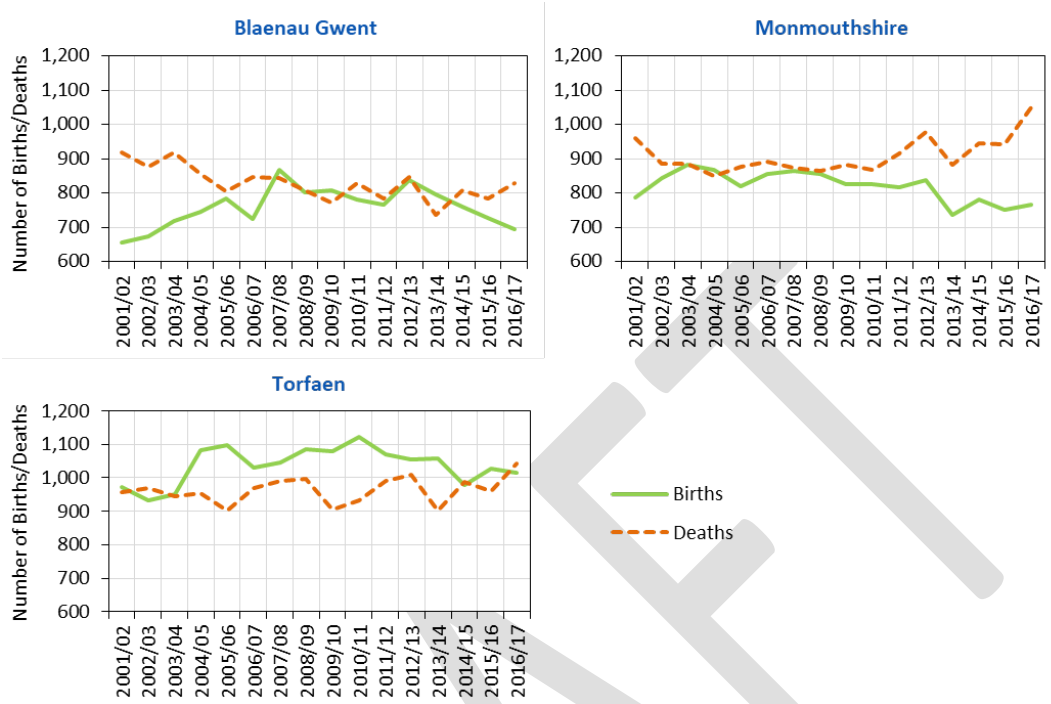



Figure 6: Number of births and deaths 2001/02–2016/17 (Source: ONS, MYEs)

# Internal Migration

2.11 Internal migration statistics record the inflow and outflow of population to and from Monmouthshire, Blaenau Gwent and Torfaen, from and to the rest of Wales and UK. An illustration of the annual inflow and outflow to and from the authorities, reveals important trends in the balance of net internal migration on population change in each of the three authorities (Figure 7).

2.12 For Blaenau Gwent, the annual variation in net migration has predominantly been driven by fluctuations in in-migration to the authority. Over the 2007/08–2010/11 and 2012/13–2014/15 periods, a fall in migration to Blaenau Gwent resulted in net outflows. The last two years have recorded a positive impact of net internal migration, driven by increased in-migration to the UA.

2.13 Since 2001/02, migration to Monmouthshire from the rest of the UK has remained higher than out-migration in all years. However, lower in-migration to Monmouthshire over the 2001/02–2007/08 period, reduced the net impact of internal migration on population growth. Since 2008/09, inflows and outflows have increased at a similar rate.

2.14 The annual impact of internal migration on population change in Torfaen has predominantly been driven by the variation in migration to the UA. Since 2012/13, migration to Torfaen has increased, resulting in a larger positive net inflow.

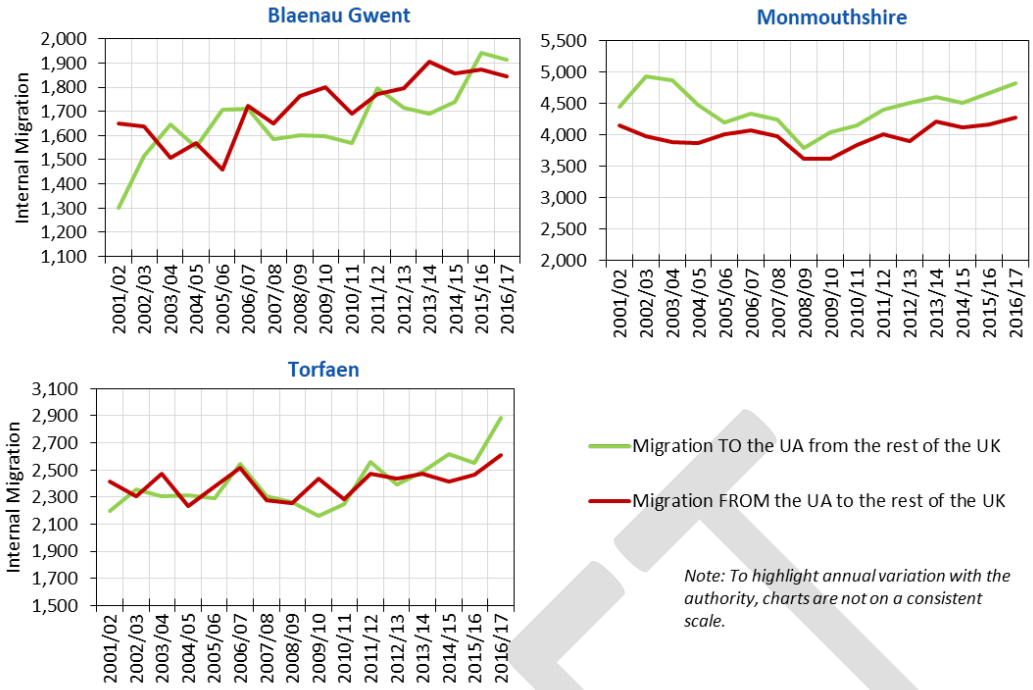



Figure 7: Internal migration flows 2001/02–2016/17 (Source: ONS, MYEs)
*(Not on a consistent scale to highlight variation within each authority)*

2.15 The top ten net migration linkages between Blaenau Gwent, Monmouthshire and Torfaen are presented in Figure 8. Since 2001, an average annual net in-migration from Bristol and South Gloucestershire has been recorded for each of the three authorities, with a rise in inflows recorded over the last five-years.

2.16 In terms of migration linkages between each of the three Unitary Authorities and the surrounding areas, the largest average annual net inflows to Blaenau Gwent over the 2001/02–2016/17 period have been from Monmouthshire (+8 per annum), Bristol (+6 pa) and South Gloucestershire (+6 pa). Larger average annual net outflows are recorded from Blaenau Gwent to Cardiff (-28 pa) and Swansea (-25 pa). A small average annual net outflow to Torfaen is also recorded (-7 pa).

2.17 Of the three authorities, Monmouthshire has the strongest migration linkages with the South West region, with an average annual net inflow of +75 pa and +53 pa from South Gloucestershire and Bristol respectively. Torfaen (+43 pa) and Newport (+41 pa) are also net contributors to Monmouthshire, whilst smaller net outflows are recorded to Swansea and Carmarthenshire (-14 pa).

2.18 Newport is the largest annual net contributor to population in Torfaen, averaging +106 pa (2001/02–2016/17). Smaller average annual net inflows are recorded from South Gloucestershire and Bristol (+10 pa), and Blaenau Gwent (+7 pa). The largest average annual net out-migration is estimated to Monmouthshire (-43 pa), with smaller net flows to Cardiff (-14 pa), Carmarthenshire (-13 pa) and Swansea (-13 pa).

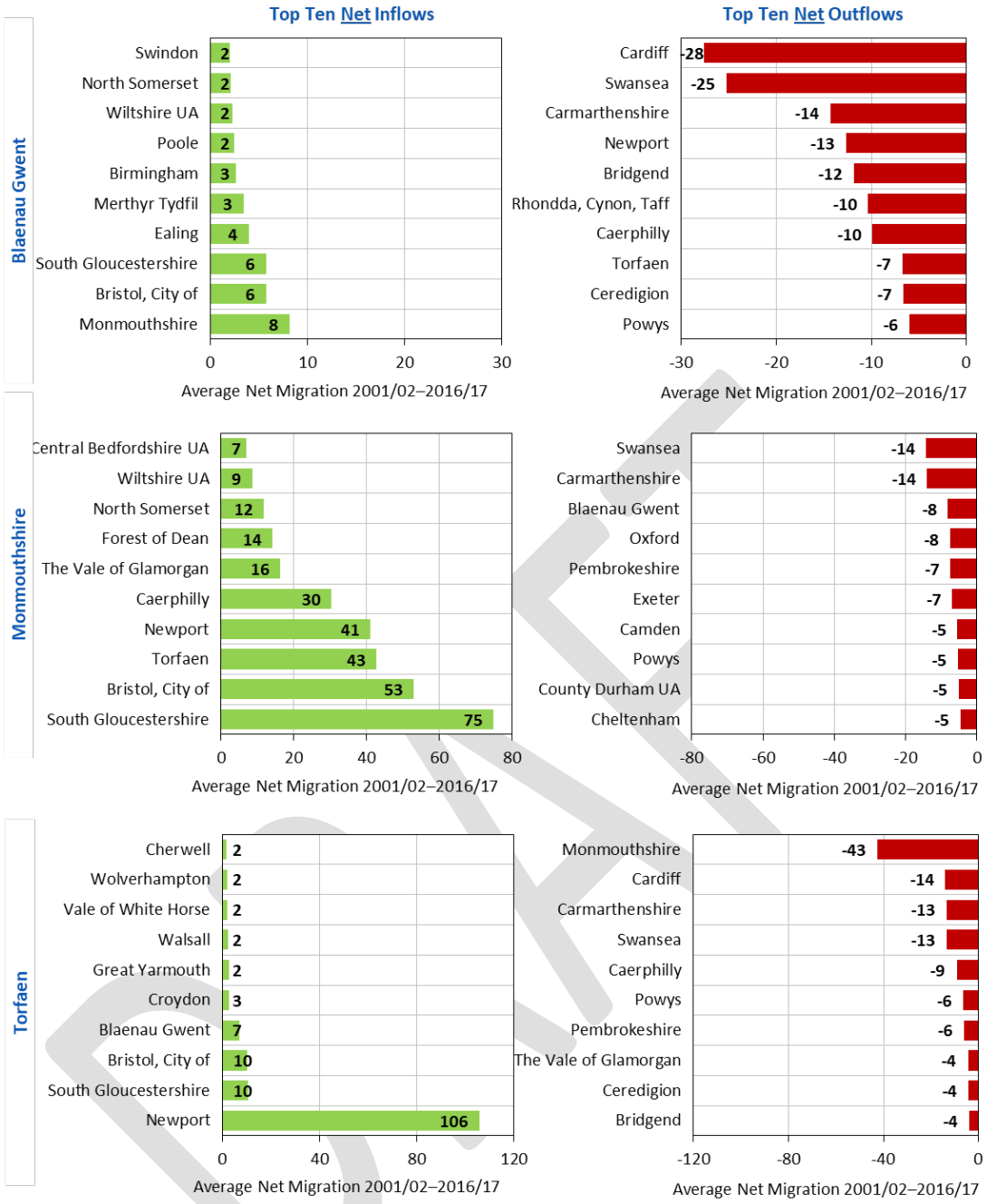



Figure 8: Top 10 average annual net inflows and outflows 2001/02–2016/17
(Source: ONS migration flow data)
*(Not on a consistent scale to highlight variation within each authority)*

2.19 Whilst the net impact remains relatively small, Blaenau Gwent has the largest migration churn (i.e. number of people moving to and from the authority) with Caerphilly, Monmouthshire, Torfaen and Cardiff (Figure 9).

2.20 Of the three areas, Monmouthshire and Torfaen have the largest migration exchanges with each other, with the net impact reducing over the last two years (Figure 9). Newport has been a net contributor to the two authorities (particularly Torfaen). Migration exchanges with Cardiff have

varied, with a spike in migration to Monmouthshire recorded in 2013/14, whilst the last three years record a gradual rise in migration to Torfaen.

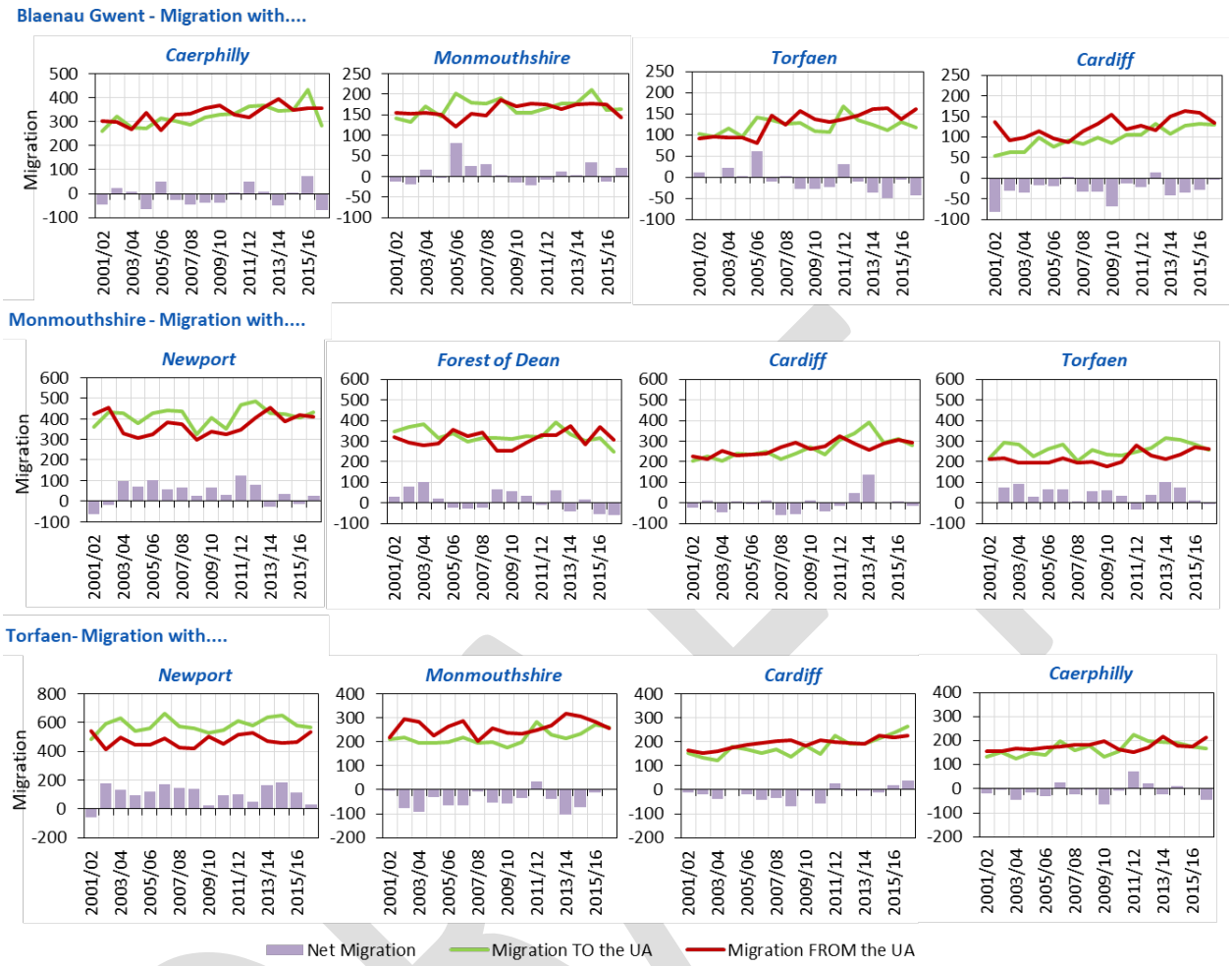



Figure 9: Top migration exchanges 2001/02–2016/17 (Source: ONS origin-destination migration data)
*(Not on a consistent scale to highlight variation within each authority)*

2.21 The age profile of migration reveals that large net out-migration in the 15–19 age groups is recorded for Blaenau Gwent, Monmouthshire and Torfaen, associated with the student population migrating out of the areas for higher education (Figure 10). A smaller return flow is recorded in the 20–24 age groups.

2.22 Blaenau Gwent has experienced an average annual net outflow in the young family (30–39) age groups, a trend that is mirrored in the 0–14 age groups as families leave the authority. A small net in-migration is recorded in the 45+ age groups, particularly 50–64 ages.

2.23 Conversely, Monmouthshire has recorded a net inflow in all age groups (except 15–19), with larger inflows in the 30–44 and 0–14 family age groups, comprising of approximately 61% of average net inflows. A notably lower net inflow is recorded in the 25–29 age group, likely associated with a number of moves for employment. Over the 2001/02–2016/17 period, an average annual net inflow of +26 is recorded in all 60+ age groups (approximately 13% of average net inflows), which has evidenced a steady increase over the last five years contributing to Monmouthshire's rapidly ageing population

profile. Whilst an average annual net inflow is recorded in the family age groups, it would require larger net inflows of young adults to counterbalance the effect of population ageing in Monmouthshire.

2.24 In Torfaen, the 20–24 age group has experienced the largest net inflow, with smaller net in-migration recorded in the 25–34 and 0–4 age groups. These age groups have evidenced a notable increase over the last three years. Over the 2001/02–2016/17 period, the net impact of migration in all other age groups is notably lower.

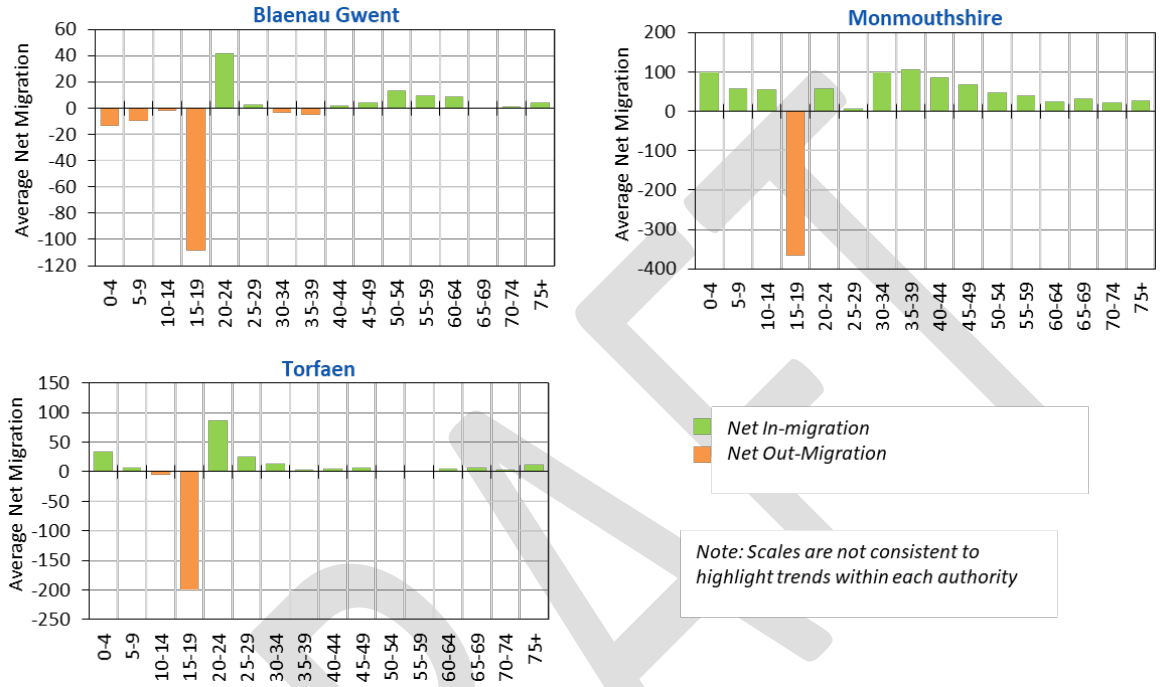



Figure 10: Average annual net migration flows by five-year age group 2001/02–2016/17 (Source: ONS origin-destination migration data)
*(Not on a consistent scale to highlight variation within each authority)*

# International Migration

2.25 National Insurance Number (NINo) statistics provide an alternative but complementary view of immigration linked to migrant worker populations (Figure 11). For the period 2005–2007, a high number of NINo registrations were recorded in each of the UAs, in line with national trends. This was primarily driven by a significant increase in migration from Poland; however, Torfaen also recorded a rise in migration from Nepal. A second increase in NINo registration was recorded in 2016, driven by increased in-migration from Romania and Bulgaria, reflecting the significant increase in Romanian migrants at national level.

2.26 For Blaenau Gwent, approximately 63% (+1,141) of total NINo registrations since 2002 have been from Polish migrants, with 6% (+109) from Romania (driven by increases since 2014) and 5% (+108) from India.

2.27 For Monmouthshire, approximately 21% (+535) of total NINo registrations have been from Poland, with a large proportion of these over the 2005–2008 period. Since 2002, NINo registrations from Romania have comprised 10% (+242) of Monmouthshire's total registrations, with 9% (+216) from India.

2.28 Compared to Blaenau Gwent and Monmouthshire, Torfaen has recorded a lower number of NINo worker registrations. A large proportion of the NINo registrations are from Poland (25%, +277). However, Torfaen has also recorded a large proportion of Nepalese workers (21%, +238), predominantly over the 2006–2009 period, with an increase also recorded in 2018 (Figure 11).

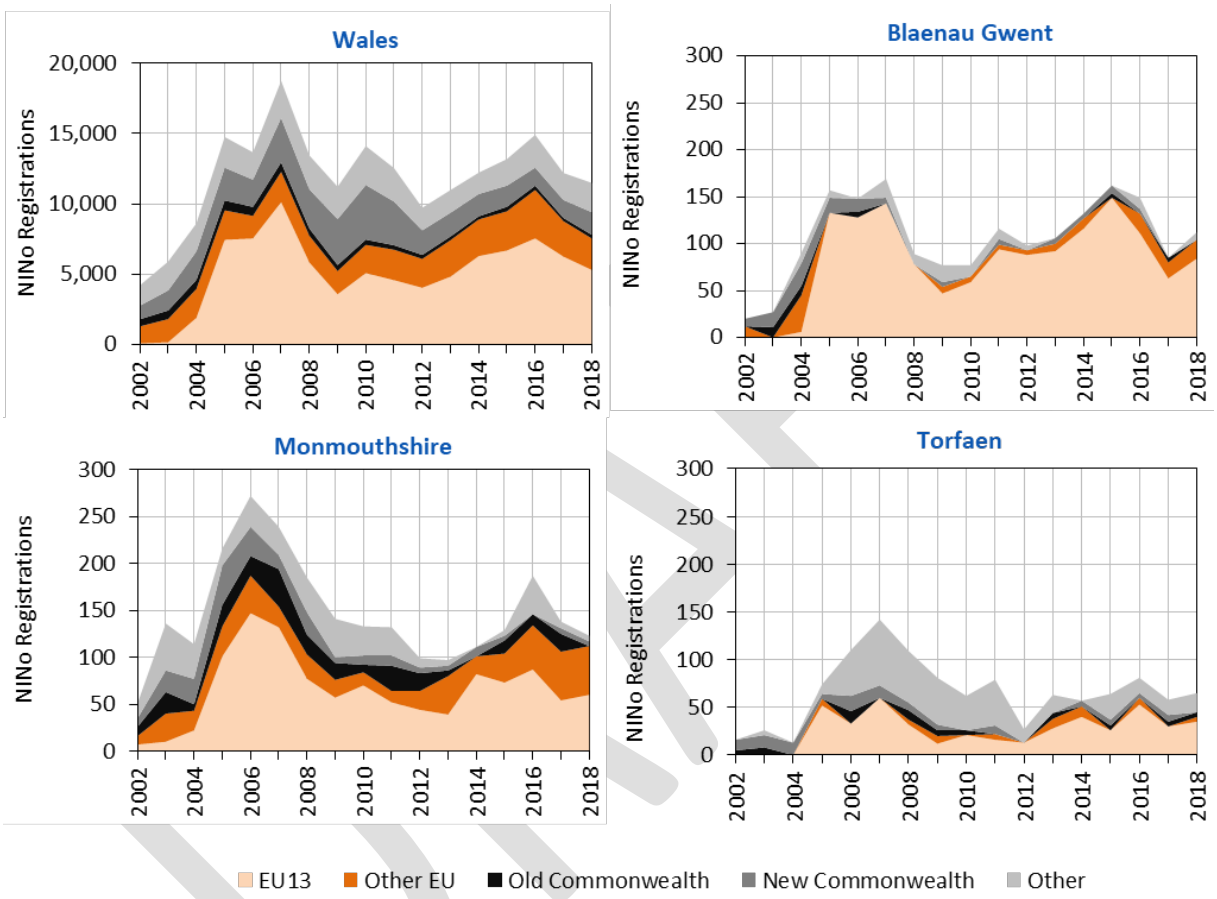



Figure 11: NINo registrations by country of origin 2002–2018 (Source: DWP)

# Housing Completions

2.29 A comparison of population change and net housing completions[10] is presented in Figure 12, with completion rate averages for the last five-, ten- and fifteen-years included as benchmarks.

2.30 Net housing completions in Monmouthshire range from +158 in 2009/10 to +522 in 2001/02. Slightly higher net completions over the 2001/02–2004/05 period align with higher annual population change, driven by larger net in-migration to the authority. Whilst net completions remained relatively stable

[10] Net completions take account of demolitions.

over the 2013/14–2017/18 period, the latest year has recorded a notable increase (+443). Capturing annual completions over the longer- and shorter-term historical periods results in a similar average, ranging from +265 over the last ten-years to +280 over the last five years.

2.31 The 2001/02–2005/06 period recorded little housing growth in Torfaen, corresponding with a period of low population change. Since 2005/06, housing completions have been notably higher, with 2018/19 recording the highest historical completions (+382). Whilst the annual change in population has varied, the latest years indicate some alignment between population growth (driven by increased net inflows to the UA) with an annual rise in completions.

2.32 Housing completions in Blaenau Gwent have varied since 2001/02, with the latter half of the period indicating overall lower growth compared to pre 2010. However, 2011/12 and 2015/16 intersect the period of lower growth, indicating a sharp increase in completions in these years (+213 and +145 respectively). Over the last ten- and fifteen-years, a similar average annual completion rate has been recorded at +95 pa and +96 pa respectively.

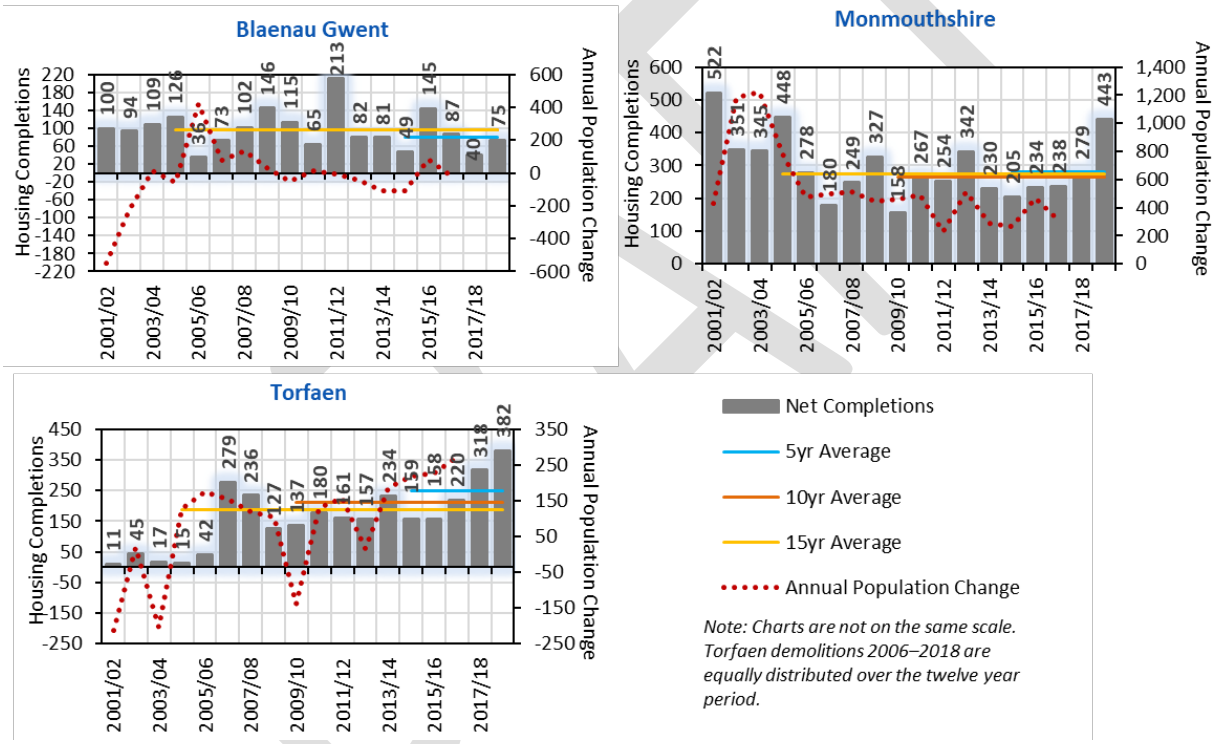



Figure 12: Housing Completions (Source: StatsWales & JHLAS)
*(Not on a consistent scale to highlight variation within each authority)*

2.33 Policy and economic change can influence housing growth. For Blaenau Gwent, the last five years suggest dampened growth when compared to longer term trends. Conversely, as outlined in Torfaen's Sustainability Appraisal (SA) report[11], higher completions in the authority since 2013/14 is likely linked to government initiatives (e.g. help to buy schemes) and more recently the Torfaen Housing Project

[11] Replacement Torfaen Local Development Plan. Draft Sustainability Appraisal Scoping Report (February 2019)

(THP) has accelerated delivery of affordable housing on specific sites. As a result, the shorter-term average is higher than long term housing completion trends suggest.

# Population Age Profile

2.34 In considering future housing, labour force and service demands, the changing size and age structure of Monmouthshire, Torfaen and Blaenau Gwent's population is a key factor. The Councils' Sustainability Appraisal (SA) reports identify a declining 'working age' population as a challenge that each is facing.

2.35 Figure 13 presents the age profile of the three UAs in 2001 and 2017. Compared to 2001, the 50+ age groups have a greater proportion of the population, as the large birth cohorts of the 1950s and 60s have aged, particularly in Monmouthshire. In Blaenau Gwent, the smaller 0–44 population evident in 2017 is driven by an overall net outflow in these age groups.

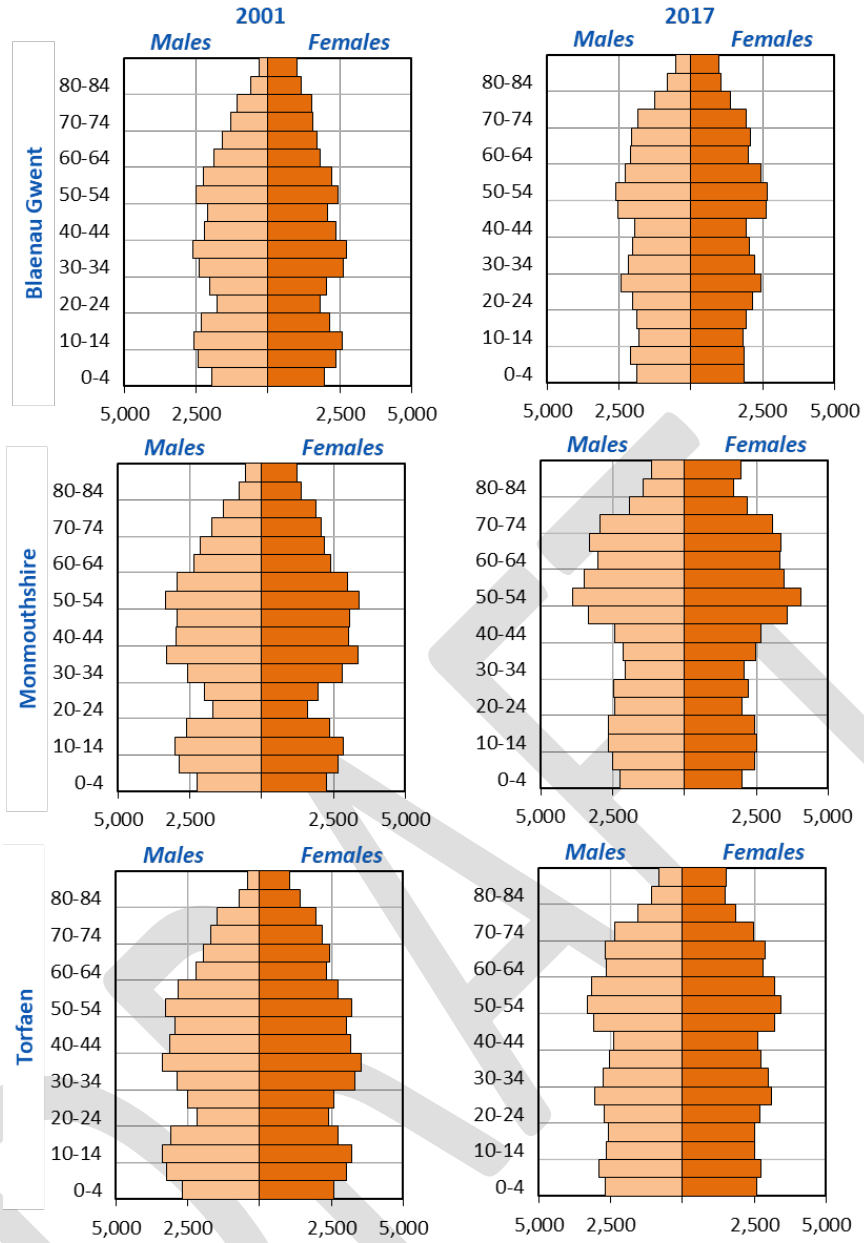



Figure 13: Population age profile 2001 & 2017
(Source: ONS, MYEs)

2.36 It is the 65+ and 85+ age groups that have seen the largest growth rates since 2001, whilst population *decline* in the young 0–15 age group has been recorded, particularly in Blaenau Gwent (Figure 14).

2.37 In Blaenau Gwent, the rate of population growth in the 85+ age groups continued to increase to 2010, before falling to 2014 and remaining stable thereafter. Whilst the growth rates in the 65+ and 16–64 age groups tracked each other to 2011, a disparity in growth rates is evident thereafter. From 2011 onward, the 65+ age group recorded accelerated growth, whilst decline is recorded in the 16–64 age group. The 0–15 age group has recorded an annual decline throughout the period.

2.38 For Monmouthshire, the 65+ and 80+ age groups have recorded notably higher population growth rates than Blaenau Gwent, Torfaen and Wales, increasing by 50% and 75% respectively (2001–2017).

By comparison, the 16–64 'working age' population has recorded little change, resulting in a widening disparity between the older and young 'working' age groups over the sixteen-year period. The 0–15 age group has recorded population decline (-9%) over the 2001–2017 period.

2.39 In Torfaen, the 85+ age group has recorded the largest growth rate since 2001 (+61%). The 65+ age group has increased by +22% since 2001, with accelerated growth recorded from 2012 onward reflecting national trends. Similar to Monmouthshire, the 16–64 age group has recorded little change (+1%) since 2001, resulting in a larger difference between the older and younger age groups. A decline in the 0–15 age group is recorded to 2015, with the last two years recording a small annual increase linked to migration.

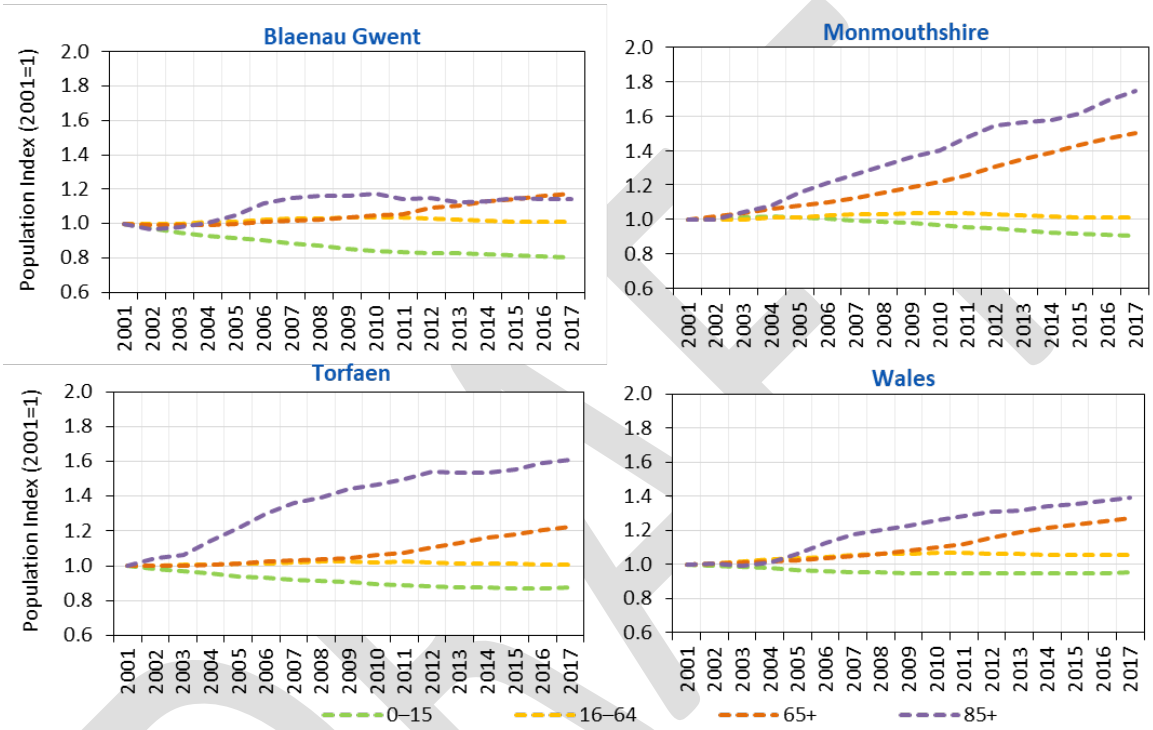



Figure 14: Population growth index by age group 2001–2017 (2001 = 1.00) (Source: ONS, MYEs)

2.40 Table 1 presents a summary of the population age profile for the three UAs and Wales in 2001 and 2017, providing an indication of the share of the older age groups relative to the rest of the population. Between 2001 and 2017, the proportion of Blaenau Gwent and Torfaen's population aged 65+ increased from 17% to 20%, similar to the national increase from 17% to 21%. Monmouthshire experienced an increase in the proportion of 65+ population, from 18% to 25% over the 2001–2017 period.

Table 1: Population age profile 2001 & 2017 (Source: ONS, MYEs)

| *Indicator* | Blaenau Gwent | | Monmouthshire | | Torfaen | | Wales | |
|---|---|---|---|---|---|---|---|---|
| | *2001* | *2017* | *2001* | *2017* | *2001* | *2017* | *2001* | *2017* |
| Percentage 65+ | 17% | 20% | 18% | 25% | 17% | 20% | 17% | 21% |
| Percentage 80+ | 4% | 5% | 5% | 7% | 4% | 5% | 5% | 5% |
| OAD | 27 | 32 | 29 | 42 | 27 | 33 | 28 | 33 |

*OAD = Old Age Dependency Ratio*

*(Population Aged 65+/Population Aged 16–64)*

2.41 The old age dependency (OAD) ratio quantifies the balance between the 'working age' population (16–64) and 'older' 65+ population. All three authorities have recorded an increase in the OAD since 2001, driven by a significant increase in the 65+ population relative to the 16–64 age group. Increases in Blaenau Gwent and Torfaen's OAD are broadly aligned to national increases, from approximately 27% in 2001 to 33% in 2017. For Monmouthshire a higher OAD is recorded, increasing from 29% in 2001 to 42% in 2017; the 5$^{th}$ highest OAD in Wales behind Conwy (48%), Powys (46%), Isle of Anglesey (45%) and Pembrokeshire (44%).

2.42 With increased life expectancies coupled with lower birth rates, the ageing of the population is inevitable. For Blaenau Gwent and Torfaen, out-migration accentuates the impact of population ageing, with a declining working age population relative to the rapidly growing older age groups. Conversely, in-migration of the older age groups to Monmouthshire is a key contributor to the ageing of the resident population.

2.43 Replenishment of the labour force is key, and synonymous with migration. Increased in-migration to the authorities (or greater retention) of the young adult age groups, would be twofold in reducing the increasing imbalance through; (i) larger population in the younger age groups and (ii) increased fertility.

# 3 Welsh Government Projections

## Population Projections

3.1 The WG 2014-based population and household projections provide the starting point in the analysis of future growth outcomes for Blaenau Gwent, Torfaen and Monmouthshire. The WG 2014-based projection is the latest available at Unitary Authority level, incorporating fertility, mortality and migration assumptions based on an historical five-year period prior to 2014 within its 'Principal' projection[12].

3.2 The WG 2014-based variant projections[13] present a range of population growth rates, driven by alternative assumptions on migration and natural change. Under the 'Higher' and 'Lower' natural change variants, different fertility and mortality rates are assumed, with the 'Higher' variant assuming higher fertility and lower mortality (i.e. higher natural change) and the 'Lower' variant assuming lower fertility and higher mortality (i.e. lower natural change). The 'Zero migration' variant assumes no migration (i.e. population change is driven by births and deaths only), whilst the '10yr Average Migration' variant draws its migration assumptions from the 2004/05–2013/14 ten-year period.

3.3 Under the WG 2014-based 'Principal' projection, the population of Blaenau Gwent is estimated to decline by -2.6% over the emerging LDP 2018–2033 plan period; a population loss of -1,815 (Figure 15). The WG 2014-based variant projections for Blaenau Gwent estimate population decline over the plan period (notwithstanding the WG 2014-based 'Zero Migration' variant). This contrasts to the population *growth* estimated under the WG 2008-based population projection (+1.5%, +1,050 people) over the 2018–2033 plan period; driven by net migration inflows to the UA and a positive impact of natural change.

3.4 For Monmouthshire, the WG 2014-based 'Principal' projection estimates a of +0.8% (+726) increase over the 2018–2033 plan period, with population growth forecast to 2028, declining thereafter (Figure 15). Over the same period, the WG 2008-based population projection estimated notably higher growth of +3.2% (+2,921), driven by assumptions on lower natural change. The WG 2014-based 'Higher' natural change and '10yr Average Migration' variants also estimate population *growth* in Monmouthshire, driven by a higher annual impact of natural change and migration (respectively) on population change. Conversely, the 'Lower' and 'Zero Migration' variants estimate a *decline* in population, with the latter highlighting the importance of migration as a key driver of population growth in Monmouthshire.

[12] https://gweddill.gov.wales/docs/statistics/2016/160929-local-authority-population-projections-2014-based-en.pdf
[13] https://gweddill.gov.wales/docs/statistics/2016/161006-local-authority-population-projections-2014-based-variant-projections-en.pdf

3.5 The WG 2014-based 'Principal' projection estimates small population growth of +0.1% in Torfaen; a population increase of +118 over the 2018–2033 plan period (Figure 15). This compares to the WG 2008-based projection which estimated population decline of -1.8% (-1,611) over the 2018–2033 period, driven by assumptions on higher net out-migration from Torfaen, operating in tandem with lower natural change. Of the WG 2014-based variant projections, only the 'Lower' natural change variant results in population decline (-2.4%), highlighting the extent to which population growth in Torfaen is driven by Natural Change.

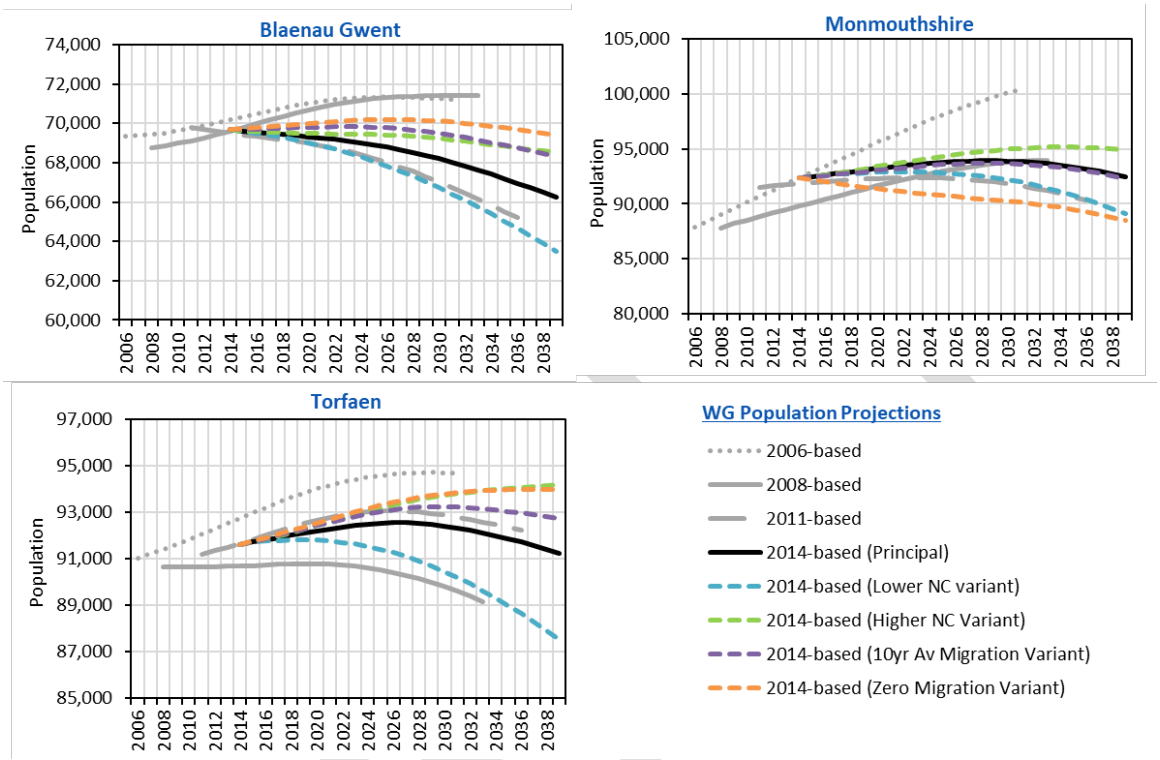



Figure 15: WG population projections (2006, 2008, 2011 & 2014-based) (Source: StatsWales)
*(Not on a consistent scale to highlight variation within each authority)*

3.6 A comparison of population growth rates for each UA with the national and regional benchmarks, reveals that notably lower growth is estimated in each of the three authorities (Figure 16). At a national level, a 3% population growth rate is estimated, whilst the South East region estimates a 5% increase, driven by notably higher growth rates for Cardiff.

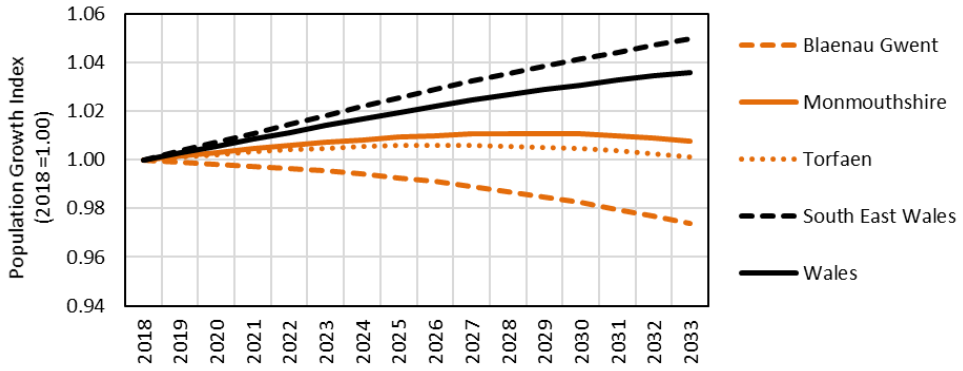



Figure 16: WG 2014-based Principal population projections growth rate 2018–2033 (Source: StatsWales)

3.7 The components of population change which underpin the 'Principal' projection for Blaenau Gwent, Monmouthshire and Torfaen are presented in Figure 17, with historical components of change for 2001/02–2013/14 included for comparison[14].

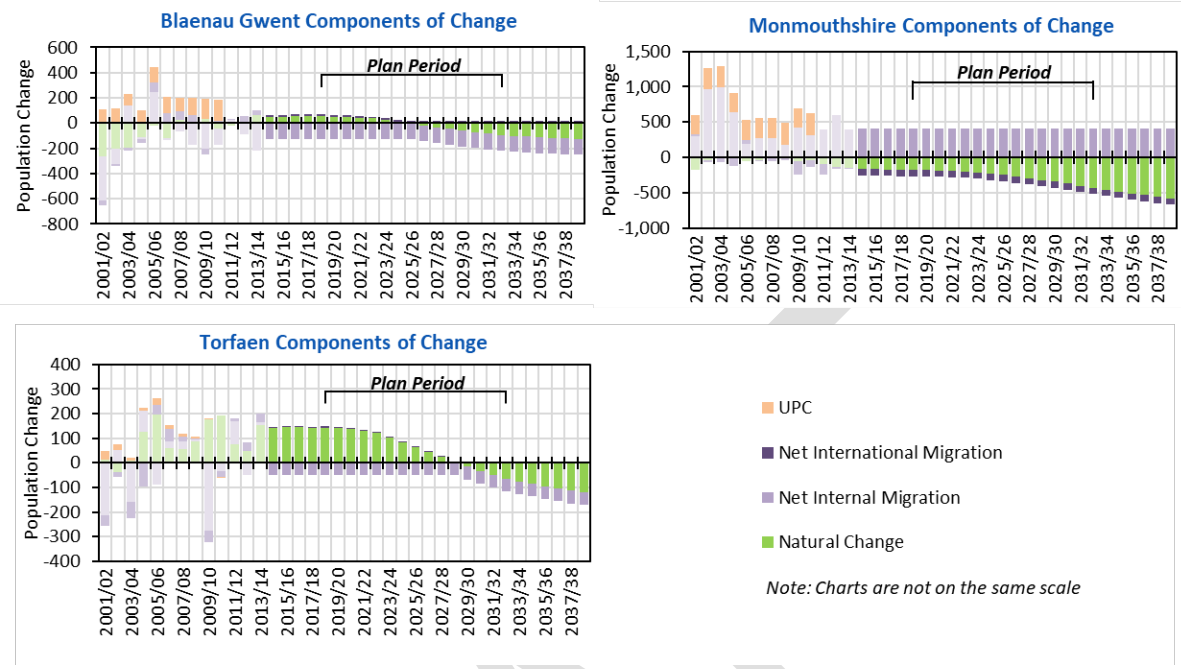



Figure 17: WG 2014-based Principal population projection components of change 2001/02–2038/39 (Source: ONS, StatsWales)
*(Not on a consistent scale to highlight variation within each authority)*

3.8 Under the WG 2014-based 'Principal' projection for Blaenau Gwent, net internal migration is estimated to continue to have a negative impact on population change, averaging -126 per annum over the 2018–2033 plan period (Figure 17). Net international migration is expected to have a positive but small impact on population change, averaging +14 pa. Natural change is estimated to have a positive impact on population change to 2024/25, becoming negative thereafter. This is a result of a rapid fall in births and annual rise in deaths, accentuated by the annual effect of net out-migration.

3.9 Net internal migration is expected to continue to be a dominant driver of population growth in Monmouthshire, remaining positive throughout the plan period (Figure 17). Whilst the average annual net inflow of +409 is representative of the preceding five years, it remains lower than that evidenced over the longer-term historical period. Natural change is estimated to have a negative impact on population change, reducing further toward the end of the plan period as population ages. Net international migration is estimated to have a small but negative impact on population change, averaging -90 per year.

3.10 Natural change has historically had a positive annual net impact on population change in Torfaen. The WG 2014-based 'Principal' projection estimates natural change to have a reducing impact on population change, becoming negative over the latter half of the plan period as population ages. The negative effect of natural change from 2027/28 onward, is driven by a notable rise in the number of

[14] These refer to the pre-revised MYEs (2012–2014) preceding the WG 2014-based projections.

deaths, operating in tandem with a fall in the number of births. The impact of natural change through population ageing is intensified by the annual net out-migration flow from the authority, averaging -51 per annum (2018–2033). Net international migration is expected to have a minimal impact on population change, averaging 4 pa over the plan period.

3.11 Under the WG 2014-based 'Higher' and 'Lower' natural change variants, the same average annual net internal migration and international migration is estimated, with differing levels of natural change impacting population growth (Figure 18). For Torfaen and Blaenau Gwent, higher fertility and lower mortality under the 'Higher' natural change variant, results in positive natural change throughout the plan period. For Monmouthshire, natural change under the 'Higher' variant continues to have an annual negative impact on population change, albeit to a lesser extent than under the 'Principal' projection. Under the 'Lower' variant, natural change is estimated to have a notably more negative impact on population change for all three authorities, with lower birth numbers exceeded by higher deaths.

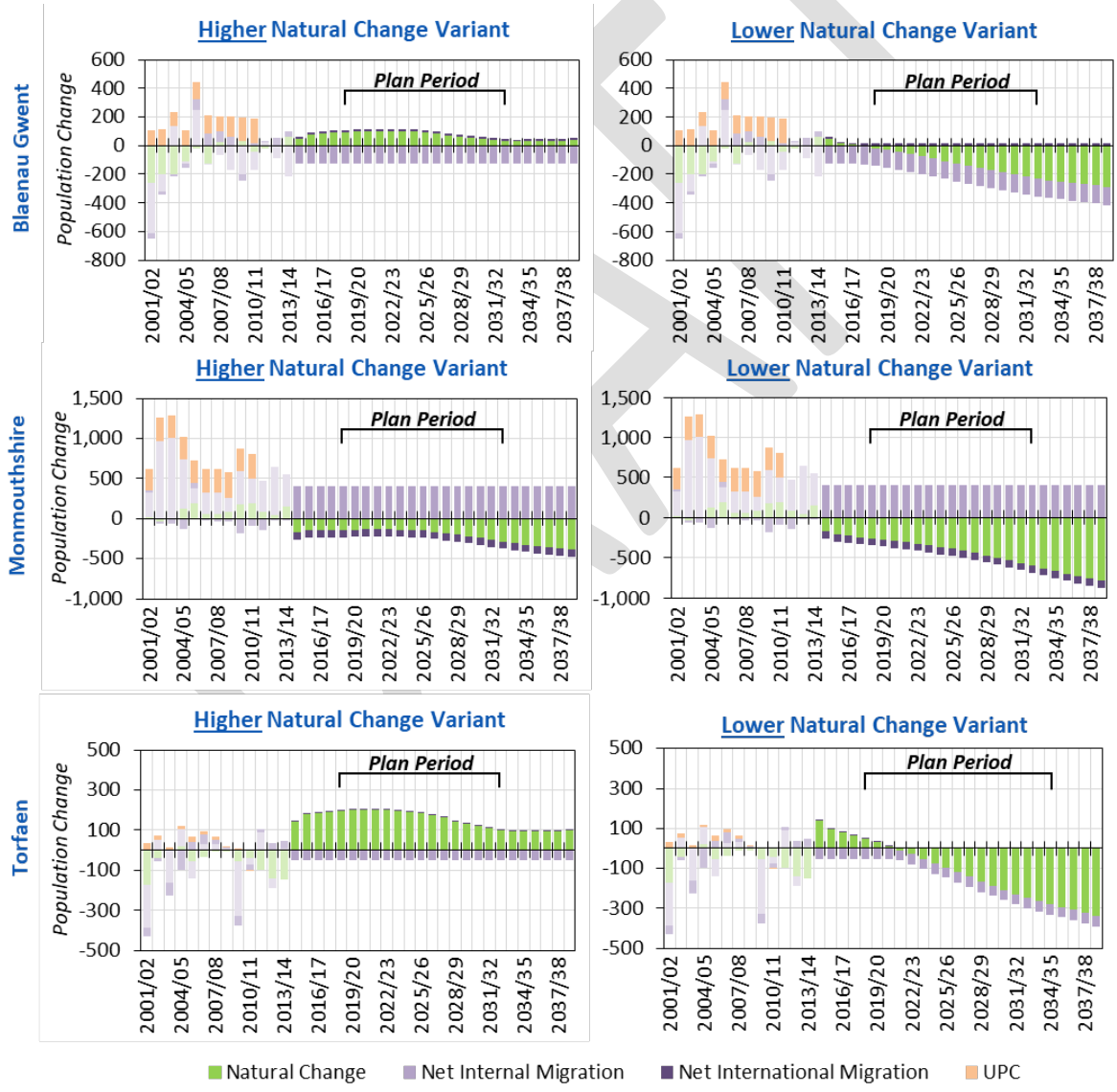



Figure 18: WG-2014 High and Low Natural Change variant population projection components of change 2001/02–2038/39 (Source: ONS, StatsWales)

# Households Projections

3.12 WG are in the process of compiling its National Development Framework (NDF)[15], due for publication in Autumn 2019. As part of this, the NDF will outline overall housing need for Wales' spatial regions and for the nation in total.

3.13 In January 2019, WG published estimates of housing need in Wales at a national and regional level[16]. These are underpinned by the WG 2014-based household projections and take account of estimates of existing unmet need, providing an overall housing need estimate for the three regions in Wales; North, Mid & South West and South East. Monmouthshire, Torfaen and Blaenau Gwent are part of the South East Wales region (together with 7 other authorities including Newport and Cardiff), which has an identified housing need range of **43,296–68,832** (Lower and Higher Natural Change variants respectively) over the 2018/19–2032/33 period. This is underpinned by a household growth range of 40,051–65,587, with approximately 1% of the region's growth in Blaenau Gwent, 2% in Torfaen and 3% in Monmouthshire**.** It is anticipated that whilst the housing need figures will be used to inform the emerging NDF and policy decisions, they do not form housing growth targets for authorities in Wales.

3.14 As outlined in the draft WG Development Plan Manual, the WG 2014-based household projections provide the 'starting point' in the assessment of housing need at local authority level, underpinned by the 2014-based population projections.

3.15 For the 2018–2033 plan period, the WG 2014-based 'Principal' projections estimate an increase of +275 households in Blaenau Gwent, +1,641 in Monmouthshire and +1,169 in Torfaen (Figure 19). This compares to household growth under the WG 2008-based household projection of +2,675 (Blaenau Gwent), +3,657 (Monmouthshire) and +964 (Torfaen).

3.16 For Blaenau Gwent and Monmouthshire, household growth is higher under the WG 2008-based projection, driven by higher underpinning population growth and a smaller average household size. Whilst the WG 2008-based *population* projection estimated lower growth than the WG 2014-based equivalent for Torfaen, household growth remains higher under the WG 2008-based projection, driven by assumptions on a reducing average household size.



[15] https://gweddill.gov.wales/topics/planning/national-development-framework-for-wales/?lang=en
[16] https://statswales.gov.wales/Catalogue/Housing/Housing-Need/estimatesofhousingneed-by-region-variant-year

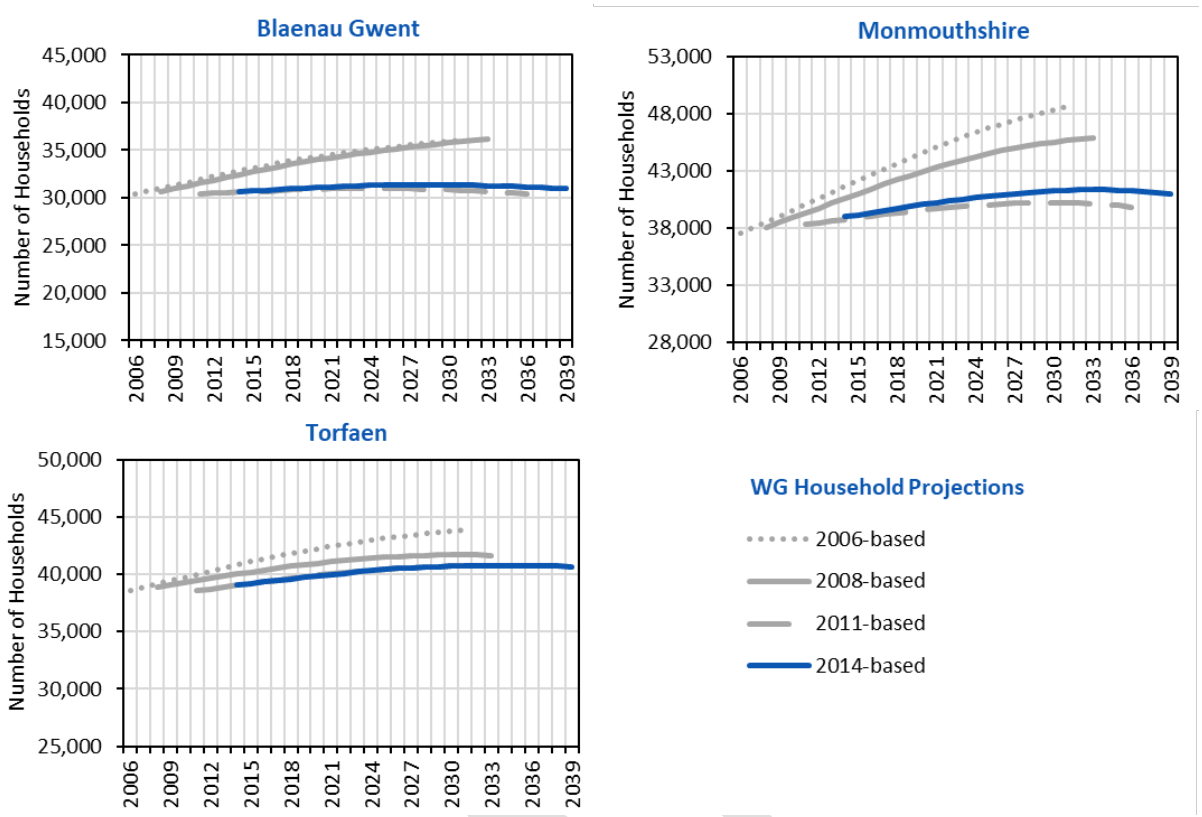



Figure 19: Comparison of WG household projections (Source: StatsWales)
*(Not on a consistent scale to highlight variation within each authority)*

3.17 Applying assumptions from the WG 2014-based household model to the variant population projections result in a range of household growth outcomes. For Blaenau Gwent, household growth over the 2018–2033 plan period ranges from -404 to +963 ('Lower Natural Change' and 'Zero Migration' variant respectively). For Monmouthshire, the 'Zero Migration' variant presents the lower end of the household range (+24), whilst the 'Higher Natural Change' variant results in the highest household growth over the plan period (+2,231). In Torfaen, the household growth over the 2018–2033 period ranges from +307 to +1,838, 'Lower' and 'Higher Natural Change' variants respectively.

3.18 A comparison of projected growth by household size between the WG 2014-based and 2008-based projections (Figure 20), indicates higher growth rates in the smaller households (1 person and 2 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, driven by different social, economic and affordability influences underpinning the longer-term evidence. The 2008-based household projections were deemed to have a more 'optimistic' outlook on economic circumstances, with more people having the potential and opportunity to form their own households. Whilst this continues to be a challenge for young adults (particularly aged 25–44), Government Policy initiatives such as Help to Buy Schemes and affordable housing are seeking to address these issues.

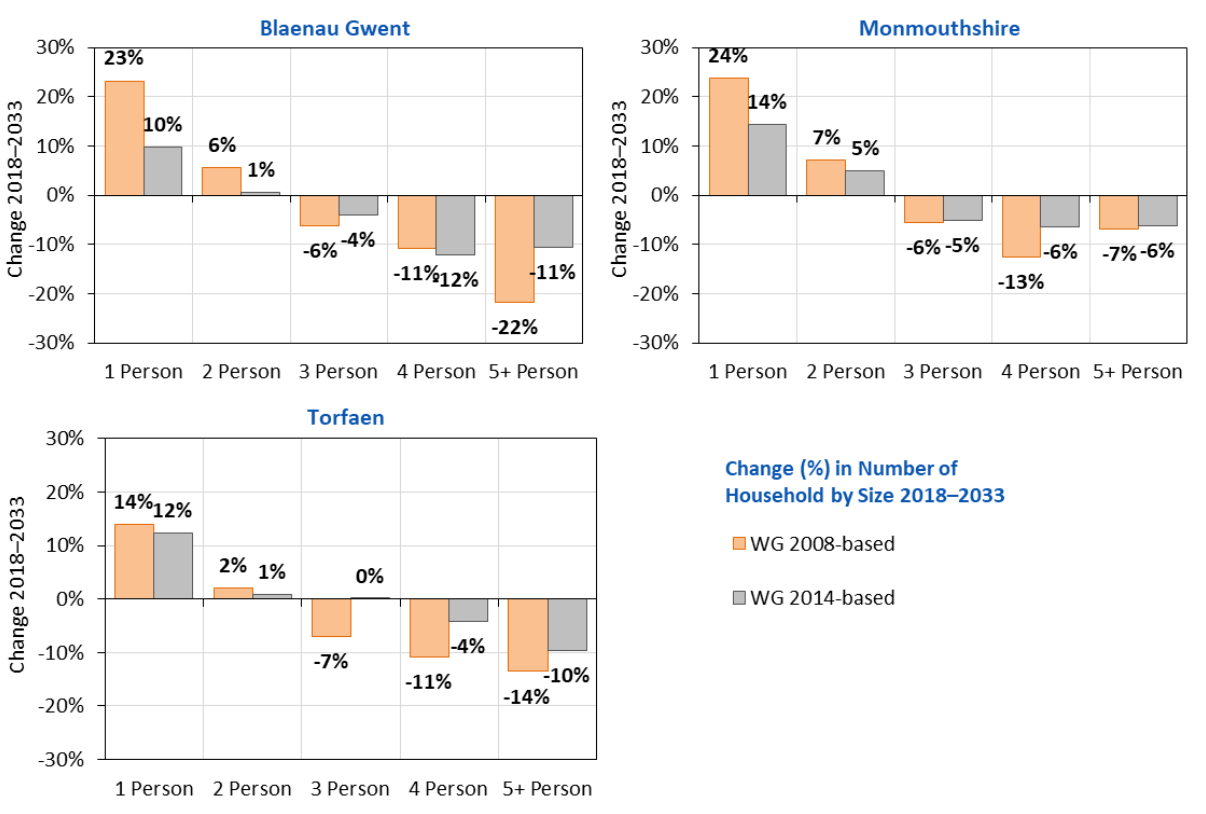



Figure 20: WG 2008-based and WG 2014-based change (%) in number of households by size 2018–2033 (Source: StatsWales)

3.19 Underpinning the household projections for Monmouthshire, Blaenau Gwent and Torfaen 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 determines the number of households required to support the estimated household population.

3.20 For the 2018–2033 plan period, the WG 2014-based household projection estimates a decline in average household size for each area; from 2.22 to 2.14 (-0.08) in Blaenau Gwent, from 2.30 to 2.23 (-0.07) in Torfaen and from 2.30 to 2.21 (-0.09) in Monmouthshire. The decline in average household size in each area is driven by increased population in the older age groups, particularly in Monmouthshire.

3.21 Under the WG 2008-based household projection model, a greater reduction in average household size is estimated, particularly in Blaenau Gwent and Monmouthshire. In Blaenau Gwent, the average household size under the WG 2008-based projections reduces from 2.07 to 1.94 (-0.13), from 2.2 to 2.1 in Torfaen (-0.1), and from 2.12 to 2.0 (-0.12) in Monmouthshire.

# 4 Demographic Scenarios

## Scenario Definition

4.1 There is no single definitive view on the likely level of expected growth in Monmouthshire, Blaenau Gwent and Torfaen. Ultimately, a mix of demographic, economic and policy issues will determine the speed and scale of change.

4.2 In Section 3, the WG 2014-based population and household projections for the three UAs have been presented, in comparison to the earlier WG 2008-based projections. In line with the draft WG Development Plan Manual, a range of scenarios have been configured to consider the latest demographic evidence and the impact of alternative migration assumptions on future population, housing and employment growth[17].

4.3 The potential impact of higher migration from Bristol and South Gloucestershire to each of the authorities following the removal of the Severn Bridge Toll in late 2018, has also been considered. In addition, dwelling-led scenarios have been developed to consider the potential growth implications of a continuation of past housing completions over the 2018–2033 plan period.

4.4 In conjunction with the WG 2014-based 'Principal' and '10yr Average Migration' variant projections, four alternative trend-based demographic and three dwelling-led scenarios have been developed for each of the UAs:

- **WG 2014-based (Principal):** this replicates the WG 2014-based population projection. Migration assumptions are based on the five-year period prior to 2014 (i.e. 2009/10–2013/14).
- **WG 2014-based (10yr Average Migration):** replicates the WG 2014-based '10yr Average Migration' variant population projection. Migration assumptions on the ten-year period prior to 2014 (i.e. 2004/05–2013/14).
- **PG Short Term[18]:** 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 'Principal' 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).

[17] Further employment growth analysis for Blaenau Gwent and Torfaen will follow at a later data.
[18] PG refers to POPGROUP forecasting model used to develop the trend-based scenarios. Please refer to Appendix B for more detail.

- **PG Long Term Adjusted** – Internal in-migration rates for each authority are adjusted to reflect higher in-migration (based on the last 5-years) from Bristol and South Gloucestershire, following the removal of the Severn Bridge toll (refer to Appendix B for more detail). All other migration flow assumptions are consistent with the PG Long Term scenario.

- **Net Nil:** Internal and international migration flows are balanced between in- and out-flows, resulting in zero net migration.

- **Dwelling-led (5yr Average):** Annual dwelling growth is applied from 2019/20 onward, based on the last five years of completions (2014/15–2018/19). For Blaenau Gwent an annual dwelling growth of +79 pa is applied, Monmouthshire +280 pa and for Torfaen +247 pa (refer to Figure 12, page 13).

- **Dwelling-led (10yr Average):** Annual dwelling growth is applied from 2019/20 onward, based on the last ten years of completions (2009/10–2018/19). For Blaenau Gwent an average annual dwelling growth of +95 pa is applied, +265 pa in Monmouthshire and +211 pa in Torfaen (refer to Figure 12, page 13).

- **Dwelling-led (15yr Average):** Annual dwelling growth is applied from 2019/20 onward, based on the last fifteen years of completions (2004/05–2018/19). For Blaenau Gwent an average annual dwelling growth of +96 pa is applied, +275 pa in Monmouthshire and +187 pa in Torfaen (refer to Figure 12, page 13).

4.5 The demographic trend and dwelling-led scenarios incorporate mid-year population estimates, migration, births and deaths statistics for 2001–2017 (i.e. three additional years of historical data to the WG projection).

4.6 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 or second homes in each UA. The 2011 Census records a vacancy rate of 4.8% in Blaenau Gwent, 4.5% in Monmouthshire and 4.2% in Torfaen (which compare to a 5.9% vacancy rate recorded for Wales). The scenarios presented here apply the 2011 Census vacancy rate for the three authorities, fixed throughout the plan period.

4.7 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.

4.8 Appendix B provides further detail on the data inputs and assumptions applied in each of the scenarios.

# Scenario Outcomes

4.9 The 2001–2033 population growth trajectories for the WG, demographic trend-based and dwelling-led scenarios are presented in the form of a chart for each UA. The tables (Table 2–Table 4) summarise each of the scenarios in terms of population and household growth for the 2018–2033 plan period, alongside the average annual migration, natural change and dwelling growth outcomes. In addition, population change by age group under the WG and trend scenarios is presented.

4.10 Scenario outcomes are presented here for the Unitary Authorities as a whole (i.e. *including* the part that falls within the Brecon Beacon National Park). For population, household, net migration and dwelling growth outcomes for Monmouthshire *excluding* the National Park, please refer to Appendix A.

## *Blaenau Gwent Growth Scenarios*

4.11 Population change in Blaenau Gwent for the 2018–2033 period ranges from -2.6% under the **WG 2014 (Principal)** scenario to +7.2% under the **PG Long Term Adjusted** scenario. Population change is higher under each of the demographic and dwelling-led scenarios than estimated under the WG 2014 projections, driven by a balanced or net in-migration to the area and subsequent positive impact of natural change.

4.12 The **WG 2014-based (Principal)** scenario presents the lower end of the population growth range, estimating population decline of -1,815 (-2.6%) and +19 dwellings per annum (dpa) over the 2018–2033 plan period. Notably larger net out-migration is estimated under the **WG 2014-based (Principal)** scenario, capturing a period of domestic (internal) net outflows from the UA over the 2009/10–2013/14 period.

4.13 The **WG 2014 (10yr Average Migration)** variant estimates lower net out-migration from the UA, resulting in population change of -0.8% over the 2018–2033 plan period. This is equivalent to an average annual dwelling growth of +54 dpa.

4.14 The **Net Nil** scenario illustrates the extent to which migration impacts population change. In achieving a balanced migration flow throughout the plan period, population growth of +0.3% is estimated, highlighting the extent to which migration is a key driver of population decline in Blaenau Gwent. Population growth under the **Net Nil** scenario results in an average annual dwelling growth of +81 dpa, higher than net housing completions recorded over the last five years.

4.15 The demographic trend based (PG) scenarios result in higher population growth and subsequent dwelling growth, than historical average completions and WG projections. Of the demographic trend scenarios, the **PG Short Term** scenario results in lower population change, capturing the lower net international migration recorded since 2011. Population growth of +2.9% under the **PG Short Term** scenario is equivalent to an average annual dwelling growth of +141 dpa over the 2018–2033 plan period.

4.16 The **PG Long Term** scenario captures the higher net international migration evident pre-2011 in its assumptions, resulting in a higher net in-migration flow (+205 pa) to Blaenau Gwent over the plan

period. Population growth of +4.9% under the **PG Long Term** scenario results in an average annual dwelling growth of +179 dpa.

4.17 The **PG Long Term Adjusted** scenario considers the impact of higher in-migration flows to the UA, whilst the level of out-migration remains consistent with the **PG Long Term** scenario. Under the **PG Long Term Adjusted** scenario, higher net in-migration from Bristol and South Gloucestershire results in an average annual net inflow of +297 per annum, driving population growth of 7.2% over the 2018–2033 plan period. As a result of higher population change, the estimated average annual dwelling growth increases to +226 pa.

4.18 The dwelling-led scenarios consider the impact of a continuation of past housing completion rates upon future population change. Of the dwelling-led scenarios, a continuation of the last five-years (**Dwelling-led (5yr Average)**) would have a dampening effect on population growth (0.2%), with net in-migration estimated at +6 per annum. Conversely, a continuation of ten-year and fifteen-year completion rates would suggest slightly higher population change of +1.0%, driven by larger migration flows into the UA.

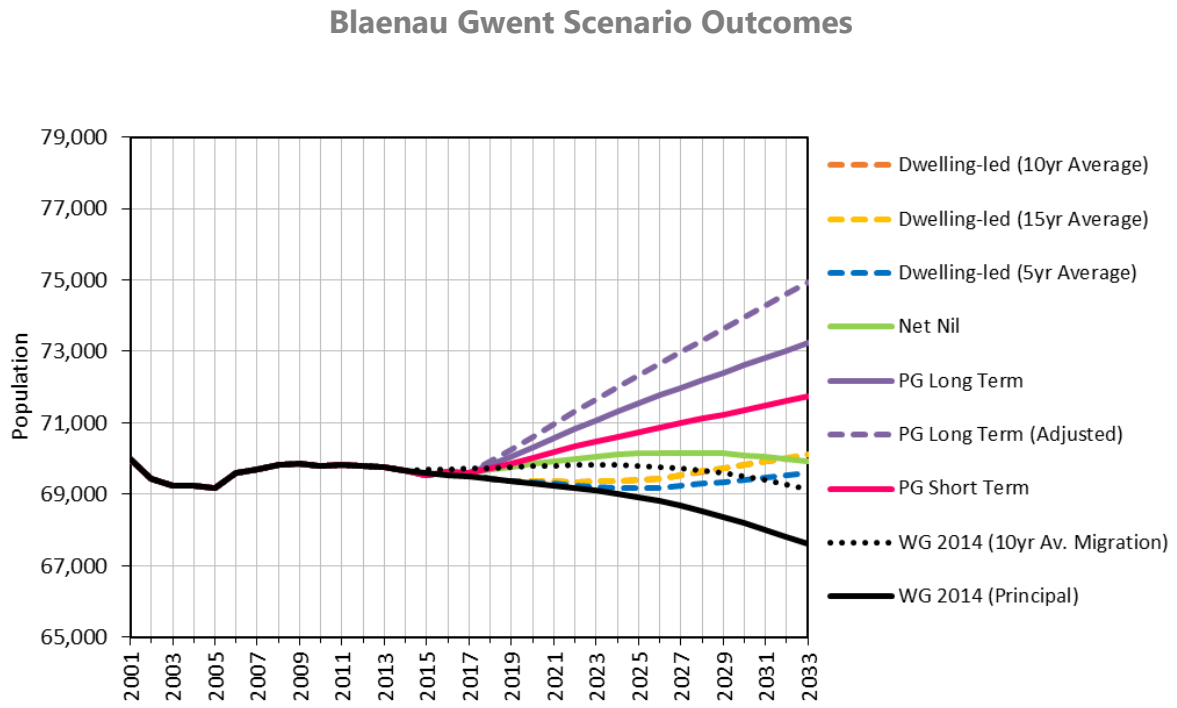



Figure 21: Blaenau Gwent population growth trajectory 2001–2033

Table 2: Blaenau Gwent Demographic & Dwelling-led Scenario Outcomes 2018–2033

| Scenario | Change 2018–2033 | | | | Average per year | | |
|---|---|---|---|---|---|---|---|
| | Population Change | Population Change % | Households Change | Households Change % | Natural Change | Net Migration | Dwellings |
| PG Long Term (Adjusted) | 5,009 | 7.2% | 3,231 | 10.4% | 37 | 297 | 226 |
| PG Long Term | 3,400 | 4.9% | 2,558 | 8.2% | 21 | 205 | 179 |
| PG Short Term | 1,996 | 2.9% | 2,020 | 6.5% | 6 | 127 | 141 |
| Dwelling-led (15yr Average) | 690 | 1.0% | 1,346 | 4.3% | 8 | 38 | 94 |
| Dwelling-led (10yr Average) | 675 | 1.0% | 1,340 | 4.3% | 8 | 37 | 94 |
| Net Nil | 238 | 0.3% | 1,162 | 3.7% | 16 | 0 | 81 |
| Dwelling-led (5yr Average) | 162 | 0.2% | 1,127 | 3.6% | 5 | 6 | 79 |
| WG 2014 (10yr Average Migration) | -587 | -0.8% | 765 | 2.5% | -3 | -36 | 54 |
| WG 2014 (Principal) | -1,815 | -2.6% | 275 | 0.9% | -9 | -112 | 19 |

Note: Scenarios ranked in order of population change (%). Dwelling-led scenarios highlighted in grey and include one year of completions data (2018/19). Household and dwelling growth estimated using assumptions from WG 2014-based household projection model and 2011 Census vacancy rate.

## *Blaenau Gwent Population Age Profiles*

4.19 Fluctuations in the level of in- and out-migration have been a key driver of Blaenau Gwent's population change. Future migration flows have a critical influence on Blaenau Gwent's population age profile, particularly in the key young adult labour force age groups. The change in age profile associated with each scenario for Blaenau Gwent over the 2018–2033 plan period is presented in Figure 22, with substantial population growth projected in the 60+ age groups under all scenarios.

4.20 The WG scenarios estimate the largest population decline in the 45–59, 20–34 and associated 0–14 age groups, driven by estimated higher net out-migration from the UA. Under the **PG Long Term** and **PG Long Term Adjusted** scenarios, smaller population decline in these age groups, together with higher growth in the 35–44 age groups, results in the maintenance of a larger 'working age' population.

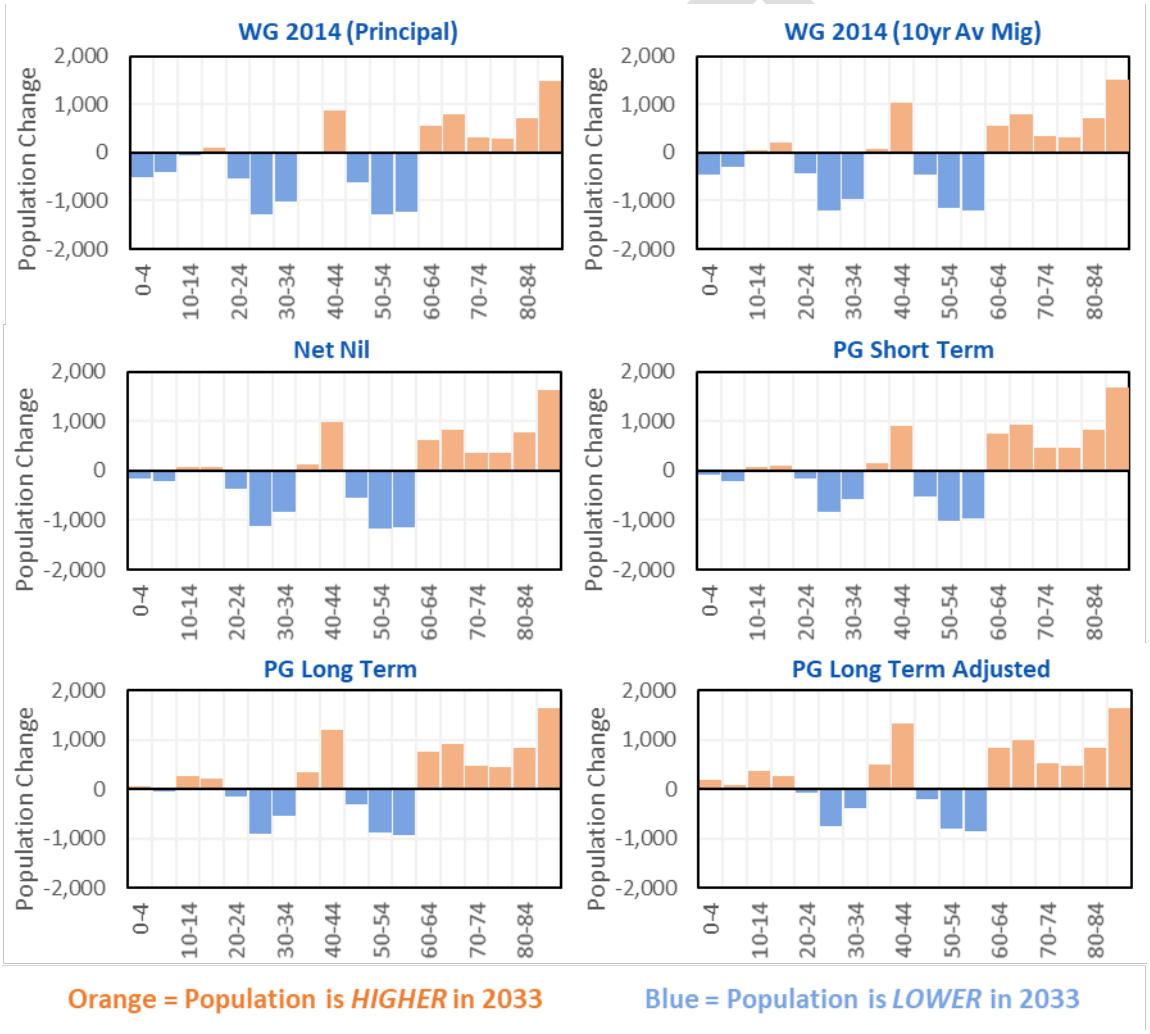



Figure 22: Blaenau Gwent population change by 5-year age group under the WG and demographic scenarios (2018–2033)

## *Monmouthshire Growth Scenarios*

4.21 In Monmouthshire, population change for the 2018–2033 period ranges from -4.4% under the **Net Nil** scenario to +17.8% under the **PG Long Term Adjusted** scenario, resulting in a dwelling change range of -12 dpa to +534 dpa. Notwithstanding the **Net Nil** scenario, population change is higher than estimated under the **WG 2014 (Principal)** scenario, driven by increased net migration flows to the area and subsequently a smaller loss due to natural change.

4.22 Population decline is estimated under the **Net Nil** scenario (-4.4%), illustrating the extent to which population change in Monmouthshire is driven by migration. Under the **Net Nil** scenario, the declining population size and associated age structure is estimated to result in an average annual dwelling change of -12 pa (2018–2033).

4.23 The **WG 2014 (10yr Average Migration)** and **WG 2014 (Principal)** projections result in similar rate of population change rate over the plan period (0.7% and 0.8% respectively). These represent the lower end of the population growth range, with an average annual dwelling growth of 104–115 dpa over the 2018–2033 plan period.

4.24 The dwelling-led scenarios, based on average completions over the last five, ten and fifteen years, result in a population growth range of 6.9%–7.4% over the plan period, driven by higher net in-migration required to accompany the annual dwelling growth target.

4.25 A continuation of historical migration flows under the demographic trend scenarios, result in population growth higher than that estimated under the dwelling-led and WG 2014 scenarios. The **PG Long Term** scenario captures higher net in-migration evidenced over the first part of the historical period, thus resulting in higher average annual net migration over the plan period than the **PG Short Term** scenario. Under the **PG Long Term** scenario, net in-migration of +821 pa operating in tandem with the reduced impact of natural change, results in population growth of 10.1% and an average annual dwelling growth of +341 dpa. Under the **PG Short Term** scenario, lower net in-migration results in population growth of 7.7%, supporting an average annual dwelling growth of +293 dpa.

4.26 The **PG Long Term Adjusted** scenario estimates the potential impact of increased in-migration flows from South Gloucestershire and Bristol, following the removal of the Severn Bridge Toll. As Monmouthshire has historically had the strongest migration linkages with the two districts, the uplift has the greatest impact upon population growth in Monmouthshire. Under the **PG Long Term Adjusted** scenario, increased net in-migration of +1,243 pa results in population growth of 17.8% over the plan period; supporting an average annual dwelling requirement of +534 dpa.

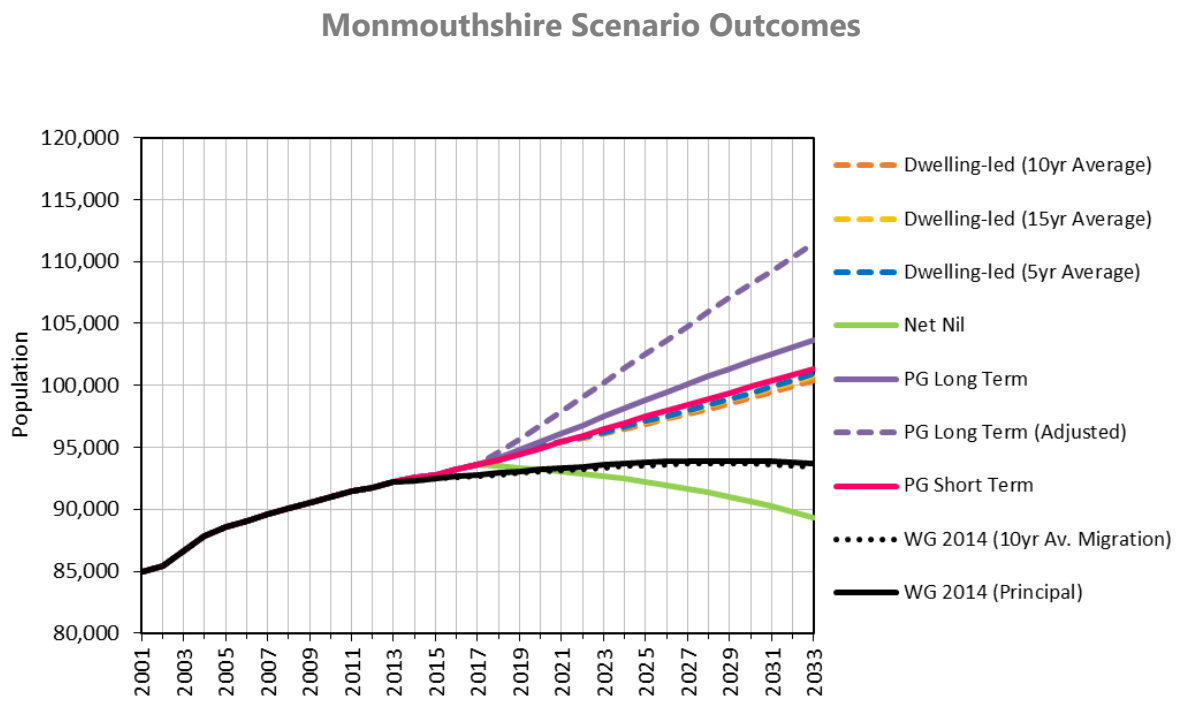



Figure 23: Monmouthshire population growth trajectory 2001–2033

Table 3: Monmouthshire Demographic & Dwelling-led Scenario Outcomes 2018–2033

| Scenario | Change 2018–2033 | | | | Average per year | | |
|---|---|---|---|---|---|---|---|
| | Population Change | Population Change % | Households Change | Households Change % | Natural Change | Net Migration | Dwellings |
| PG Long Term (Adjusted) | 16,825 | 17.8% | 7,652 | 19.0% | -121 | 1,243 | 534 |
| PG Long Term | 9,483 | 10.1% | 4,887 | 12.2% | -189 | 821 | 341 |
| PG Short Term | 7,282 | 7.7% | 4,199 | 10.5% | -210 | 695 | 293 |
| Dwelling-led (5yr Average) | 6,949 | 7.4% | 4,163 | 10.4% | -219 | 683 | 291 |
| Dwelling-led (15yr Average) | 6,800 | 7.2% | 4,105 | 10.2% | -220 | 673 | 287 |
| Dwelling-led (10yr Average) | 6,440 | 6.9% | 3,965 | 9.9% | -222 | 651 | 277 |
| WG 2014 (Principal) | 726 | 0.8% | 1,641 | 4.1% | -271 | 319 | 115 |
| WG 2014 (10yr Average Migration) | 634 | 0.7% | 1,484 | 3.7% | -242 | 284 | 104 |
| Net Nil | -4,136 | -4.4% | -165 | -0.4% | -276 | 0 | -12 |

Note: Scenarios ranked in order of population change (%). Dwelling-led scenarios highlighted in grey and include one year of completions data (2018/19). Household and dwelling growth estimated using assumptions from WG 2014-based household projection model and 2011 Census vacancy rate.

## *Monmouthshire Population Age Profiles*

4.27 The ageing population of Monmouthshire is a key factor when considering future housing requirements for the UA. Under each of the growth scenarios, a substantial increase in the 60+ age groups is estimated, driven by the age profile of migration, operating in tandem with the ageing of the resident population (Figure 24).

4.28 Under the WG scenarios, population decline is estimated in the 45–59 age groups and 0–34 age groups, driven by an average annual net outflow from Monmouthshire in these age groups. The **PG Short Term** scenario indicates population change by age groups at a level similar to the WG scenarios, albeit with notably lower population decline in the 0–34 age groups over the plan period.

4.29 Conversely, higher net in-migration in the **PG Long Term** scenario, results in population growth of the key 30–44 family age groups, with growth mirrored in the 0–14 age groups. Growth in these age groups is increased further under the **PG Long Term Adjusted** scenarios, capturing increased in-migration in the key 25–45 labour force age groups.

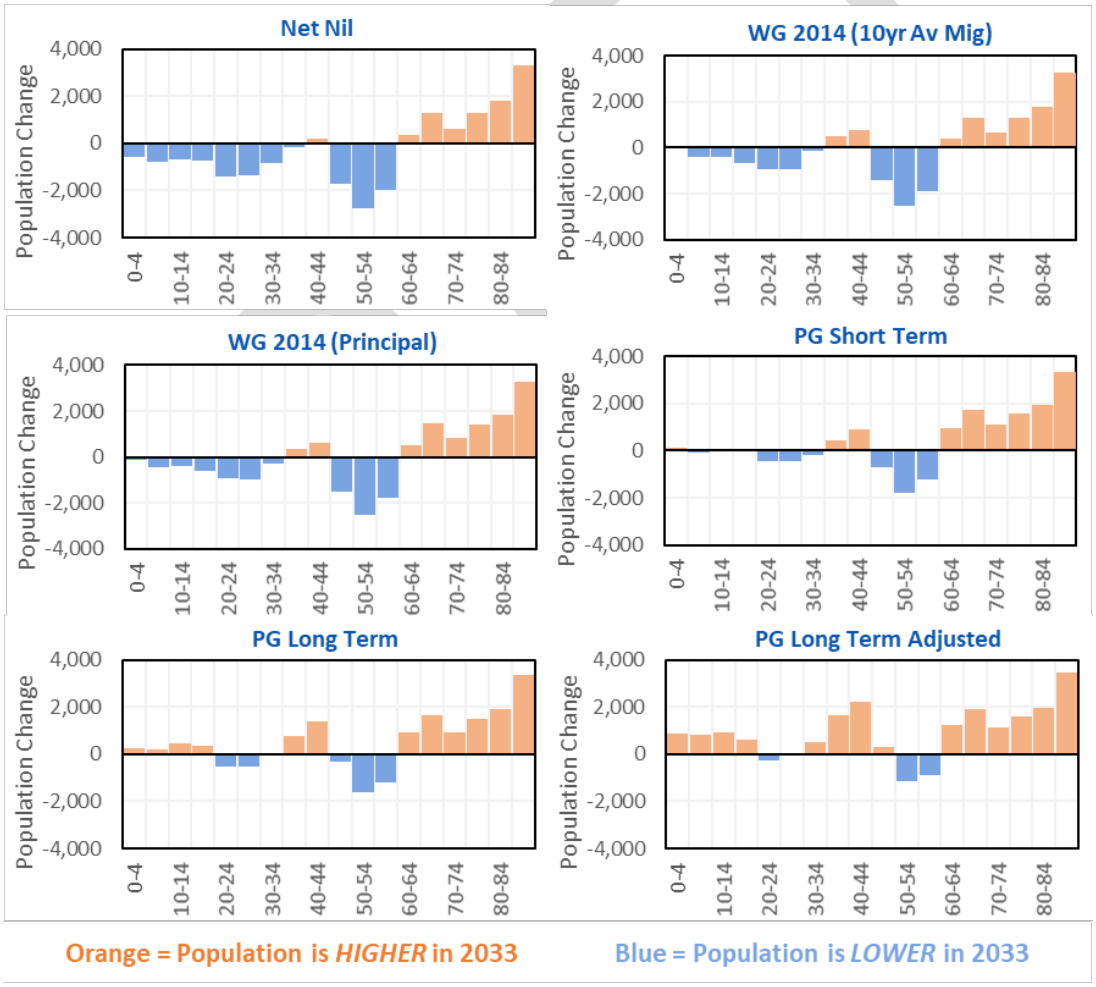



Figure 24: Monmouthshire population change by 5-year age group under the WG and demographic scenarios (2018–2033)

## *Torfaen Growth Scenarios*

4.30 Over the 2018–2033 plan period, population change in Torfaen ranges from 0.1% under the **WG 2014 (Principal)** projection to 8.0% under the **PG Long Term Adjusted** scenario. The demographic trend-based scenarios (which include an additional three years of migration history in their assumptions), result in higher population and dwelling change than under the WG 2014-based projections.

4.31 Low population change estimated under the **WG 2014 (Principal)** projection is driven by an average annual net out-migration flow of -47 per annum, capturing the large outflow evident in 2009/10 in its assumptions. Small population growth (+0.1%) is driven by the positive impact of natural change to 2027/28. Over the 2018–2033 plan period, an average annual dwelling growth of +81 dpa is estimated under the **WG 2014 (Principal)** projection.

4.32 Under the **Net Nil** scenario, population growth of 1.5% is estimated over the 2018–2033 plan period. Compared to the **WG 2014 (Principal)** projection which has an annual net out-migration flow, greater retention of the resident population through balanced migration, results in a greater impact of natural change, thus driving population growth. The **Net Nil** scenario results in an average annual dwelling growth of +119 pa (2018–2033).

4.33 Population change under the demographic scenarios ranges from 5.3% to 8.0% under the **PG Long Term** and **PG Long Term Adjusted** scenarios respectively. Under the **PG Short Term** scenario, population change of +6.0% is estimated, capturing the last three years of higher net in-migration to Torfaen in its migration assumptions resulting in an average annual net inflow of +239 pa. Over the plan period, population growth under the **PG Short Term** scenario is associated with an average annual dwelling growth of +237 dpa.

4.34 Of the demographic scenarios, lower population change is estimated under the PG Long Term scenario, with the larger net out-migration flows in 2001/02, 2003/04 and 2009/10 captured in its migration assumptions having a 'dampening' effect on future migration. Under the **PG Long Term** scenario, the estimated population growth and age structure results in an average annual dwelling growth of +210 dpa over the plan period.

4.35 The **PG Long Term Adjusted** scenario draws its migration assumptions from the same 2001/02–2016/17 period but considers the impact of increased migration from South Gloucestershire and Bristol to Torfaen. Under the **PG Long Term Adjusted** scenario, increased in-migration results in an average annual net migration of +319 pa over the plan period, compared to +185 under the **PG Long** Term scenario. Higher net in-migration and subsequent natural change increases population growth to 8.0%, with an estimated average annual dwelling growth of +275 dpa (2018–2033).

4.36 A continuation of longer-term dwelling completions under the **Dwelling-led (15yr Average)** scenario result in lower population growth (4.7%) than estimated under the demographic trend-based scenarios. Under the **Dwelling-led (5yr Average)** scenario, the increase in completions evident over the latter years of the historical period are captured in the average annual dwelling growth estimated over the forecast period. As a result, higher net in-migration is required to support the increased average annual dwelling growth, thus resulting in higher population change (5.4%) which sits within the **PG Short Term** and **PG Long Term Adjusted** growth range.

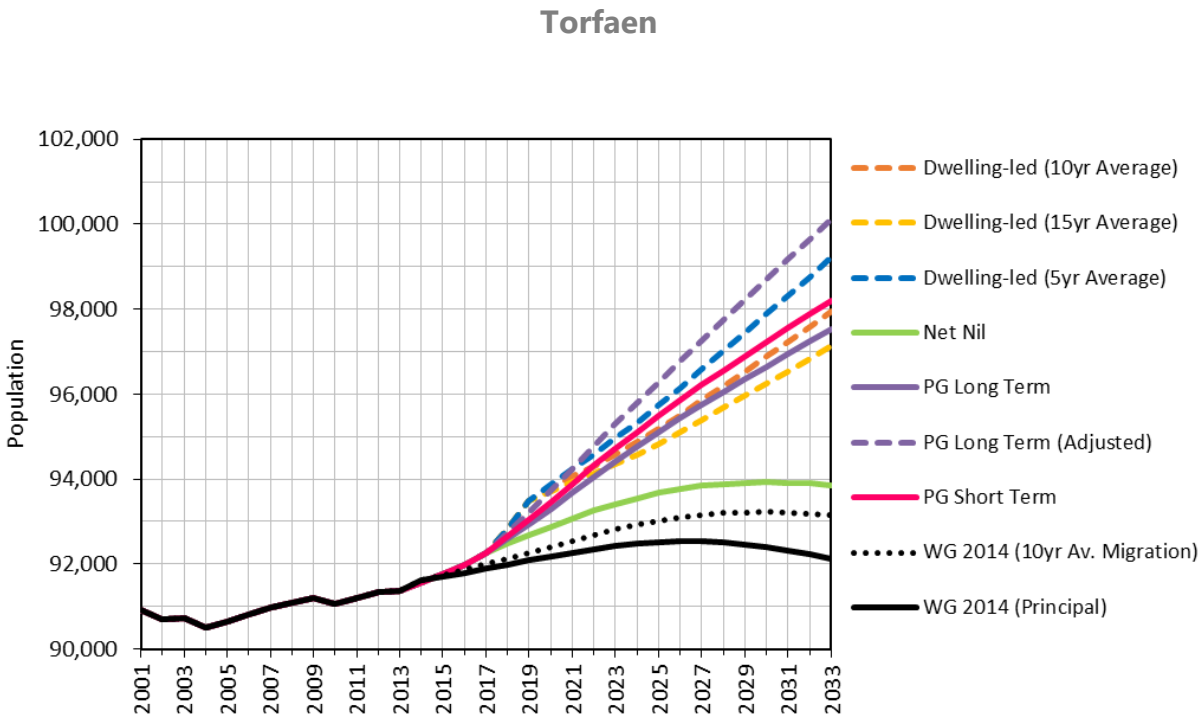



Figure 25: Torfaen population growth trajectory 2001–2033

Table 4: Torfaen Demographic & Dwelling-led Scenario Outcomes 2018–2033

| Scenario | Change 2018–2033 | | | | Average per year | | |
|---|---|---|---|---|---|---|---|
| | Population Change | Population Change % | Households Change | Households Change % | Natural Change | Net Migration | Dwellings |
| PG Long Term (Adjusted) | 7,393 | 8.0% | 3,952 | 9.9% | 173 | 319 | 275 |
| Dwelling-led (5yr Average) | 6,416 | 6.9% | 3,683 | 9.2% | 130 | 298 | 256 |
| PG Short Term | 5,559 | 6.0% | 3,402 | 8.5% | 131 | 239 | 237 |
| Dwelling-led (10yr Average) | 5,151 | 5.6% | 3,190 | 8.0% | 120 | 223 | 222 |
| PG Long Term | 4,942 | 5.3% | 3,011 | 7.6% | 145 | 185 | 210 |
| Dwelling-led (15yr Average) | 4,340 | 4.7% | 2,873 | 7.2% | 114 | 175 | 200 |
| Net Nil | 1,385 | 1.5% | 1,712 | 4.3% | 92 | 0 | 119 |
| WG 2014 (10yr Average Migration) | 1,011 | 1.1% | 1,430 | 3.6% | 86 | -19 | 100 |
| WG 2014 (Principal) | 118 | 0.1% | 1,169 | 3.0% | 55 | -47 | 81 |

Note: Scenarios ranked in order of population change (%). Dwelling-led scenarios highlighted in grey and include one year of completions data (2018/19). Household and dwelling growth estimated using assumptions from WG 2014-based household projection model and 2011 Census vacancy rate.

## *Torfaen Population Age Profiles*

4.37 Torfaen's changing age profile is again a key factor when considering future housing and service requirements of the area.

4.38 Over the 2018–2033 plan period, there is substantial population growth estimated in the 60+ age groups under all scenarios (Figure 26). Under the WG scenarios, small population growth is estimated in the 35–44 and 10–19 age groups, with population decline forecast in all other young adult age groups.

4.39 The **PG Long Term** and **PG Short Term** scenarios result in a similar evolution of the age profile, with population decline estimated in the 20–34 and 45–59 age groups. Higher net in-migration under the **PG Long Term Adjusted** scenario reduces the estimated level of population decline in these age groups and results in higher growth in the 35–44 age groups and associated 0–9 age groups.

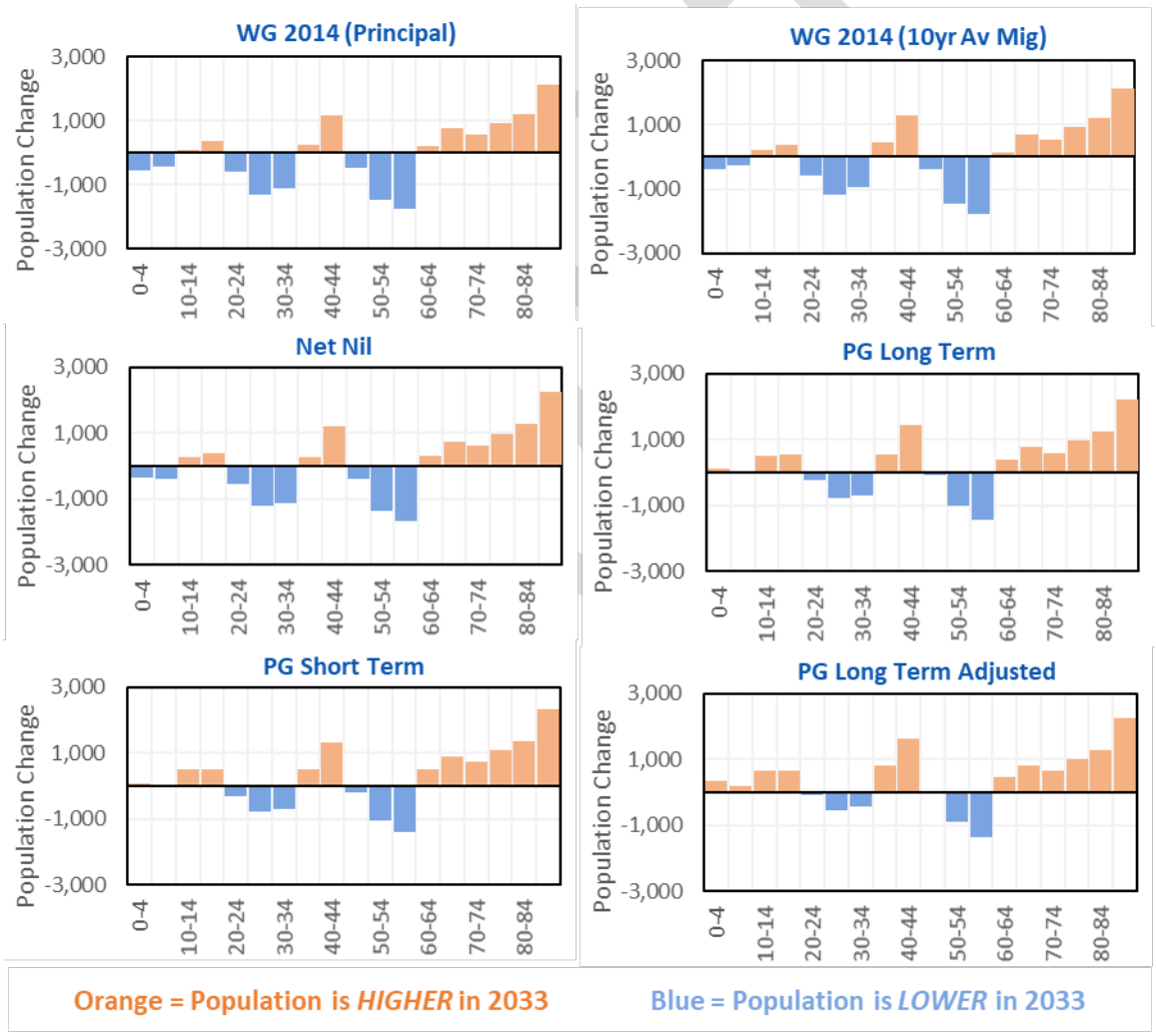



Figure 26: Torfaen population change by 5-year age group under the WG and demographic scenarios (2018–2033)

# Household Membership Rates

4.40 The 2014-based household projection model suggests lower household formation compared to its 2008-based equivalent. This is driven by lower household membership rate assumptions in the young adult 1-person and 2-person household groups, reflected in a larger average household size assumed throughout the plan period.

4.41 In accordance with the draft Development Plan Manual and to evaluate the potential impact of higher household formation on housing growth in Blaenau Gwent, Monmouthshire and Torfaen, each of the demographic scenarios has been configured using membership rate and average household size assumptions from the WG 2008-based household projection model (Figure 27).

4.42 Under each of the demographic scenarios, changes to the household membership rates and household size, influence the level of household and dwelling growth that results from the estimated change in population. Under the WG's 2008-based household model 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 small households (i.e. '1 person' and '2 person'), operating in tandem with fewer '5+ households'.

4.43 The current LDP targets for each of the three authorities is underpinned by the higher 2008-based membership rate assumptions. Applying these household assumptions to the population growth trajectories under the WG 2014-based and demographic trend-based scenarios, highlights the differences between the two WG household models.

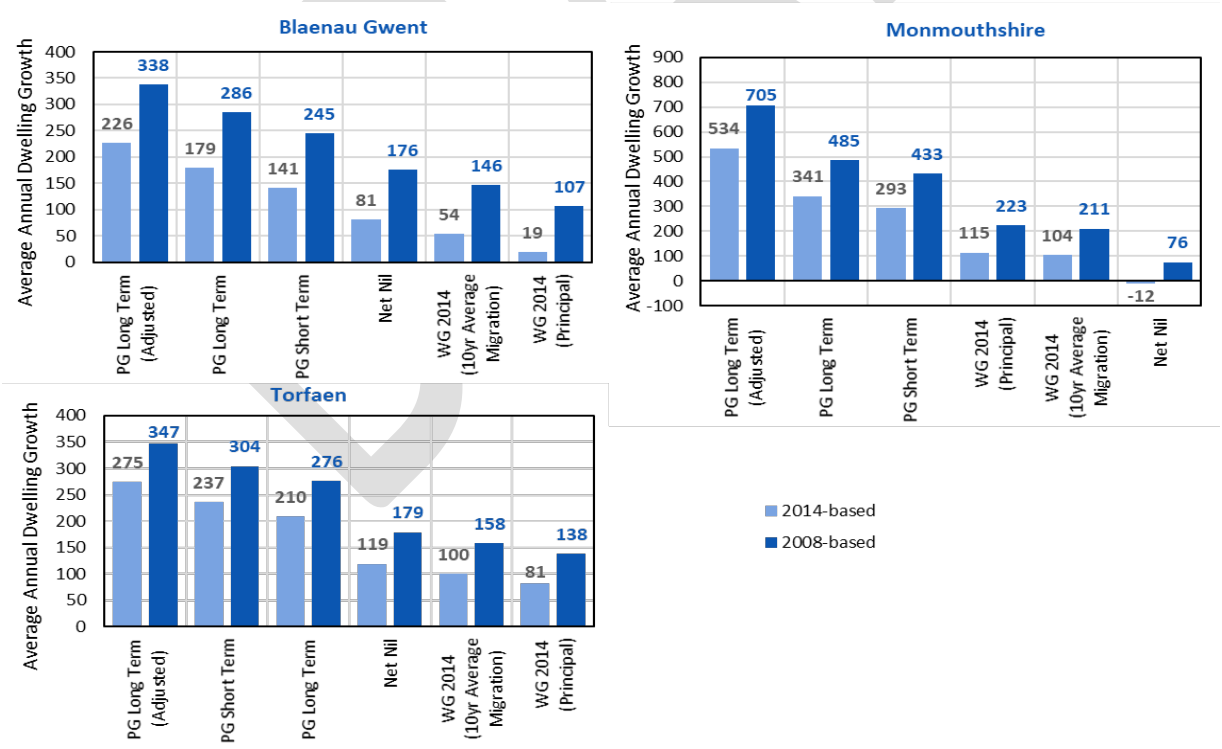



Figure 27: Average annual dwelling growth (2018–2033) under the demographic scenarios: WG 2014-based and WG 2008-based household model assumptions

*(Not on a consistent scale to highlight variation within each authority)*

4.44 For Blaenau Gwent, the application of the WG 2008-based assumptions increases the average annual dwelling growth range from 19–226 dpa (under the WG 2014-based household model assumptions) to 107–338 dpa over the plan period.

4.45 For Monmouthshire, the average annual dwelling growth range increases from -12–534 dpa to +76–705 dpa over the plan period. Under **WG 2014 (Principal)** scenario, the application of the 2008-based membership rates results in a dwelling growth of 223 dpa, compared to the estimated dwelling growth of +115 under the 2014-based membership rate assumptions. The **PG Long Term Adjusted** scenario results in the highest dwelling growth of +705 dpa under the 2008-based membership rates, an uplift of approximately +170 (32%) from its 2014-based equivalent.

4.46 For Torfaen, the higher WG 2008-based membership rate assumptions increase the average annual dwelling growth range from 81–275 dpa to 138–347 dpa. The **WG 2014 (Principal)** scenario presents the lower end of this range, whilst the **PG Long Term Adjusted** scenario presents the upper end of the dwelling growth range, estimating a 26% increase.

4.47 Whilst the use of the WG 2008-based assumptions in this analysis illustrates the extent to which previous targets were underpinned by higher household growth assumptions, it is appropriate that the emerging LDP dwelling growth target should be underpinned by the latest WG evidence, drawn from assumptions from the 2014-based household projection model.

# 5 Economic Profile

## Context

5.1 The demographic scenarios presented in Section 4, provide an indication of the potential impact of a continuation of past migration and housing completion trends upon future population change and housing growth in Blaenau Gwent, Monmouthshire and Torfaen.

5.2 In contemplating future housing requirements in each of the areas, it is important to consider the relationship between demographic change and economic growth, aligning the two using key assumptions on future economic activity, commuting and unemployment. Alignment of demographic evidence with the Councils' economic strategies is an important consideration, but one that presents a particular methodological challenge.

5.3 In 2018, BE Group, Hatch and perConsulting completed an 'Economies of the Future'[19] report for Monmouthshire County Council. This considered the potential impact of alternative economic growth scenarios; the 'Baseline' which is underpinned by an Oxford Economics (2018) forecast for Monmouthshire, and accelerated growth scenarios (referred to as 'Match UK Growth Rates' and 'Radical Structural Economic Change'). The economic evidence presented in the report will inform Monmouthshire's emerging LDP.

5.4 Under Monmouthshire's Oxford Economics 'Baseline' forecast, employment growth of +1,104 is estimated for 2018–2033, an average annual growth of +74 pa (Figure 28). A large proportion of this growth is estimated to be achieved prior to 2024/25, with the annual change in employment reducing thereafter and becoming negative over the latter years of the plan period.

5.5 The 'UK Growth Rate' employment forecast incorporates uplifts to sectors that indicate noticeably lower growth under the Oxford Economics 'Baseline' forecast relative to historical performance [20]. This includes manufacturing, knowledge-based service, public admin and education, and arts, entertainment and education sectors in context of UK growth [21]. Over the 2018–2033 plan period, this estimates employment growth of +2,271 (+151 pa)[22], with a large proportion of growth achieved prior to 2024/25 (Figure 28).

5.6 The 'Economies of the Future' report presents a 'Radical Structural Change' (RSC) scenario, expressed as a job growth range. The 'Lower' end of the 'Radical Structural Change' range estimates employment

[19] http://democracy.monmouthshire.gov.uk/documents/s19318/1a%20Appendix%20B%20-%20Economies%20of%20the%20Future%20Strategic%20Direction%20Report%202018.pdf

[20] Refer to Monmouthshire's 'Economies for the Future' report for more detail.

[21] Future Monmouthshire. Economies of the Future – Projections Report. April 2018

[22] Includes adjustment made for 'double jobbing' based on Monmouthshire's long-term (2004–2018) average of percent of people with a second job.

growth of +3,866, with the 'Higher' end of the range +8,273[23]. This is equivalent to an average annual employment growth of +258 pa and +552 pa (Lower and Higher respectively) (Figure 28). The employment growth range under the 'Radical Structural Change' forecasts consider the potential impact of substantial economic changes in Monmouthshire's economy, resulting in a significantly higher employment growth range than under the 'Baseline' equivalent.

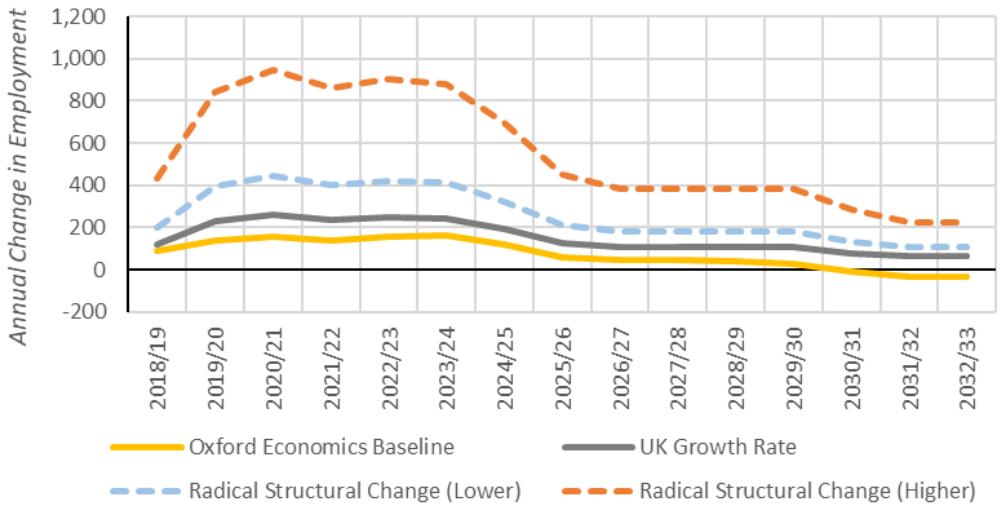



Figure 28: Monmouthshire annual change in workplace-based employment
(Source: Oxford Economics 2018, Economies of the Future report)

5.7 At the time of writing this report, Blaenau Gwent and Torfaen are commissioning a joint Employment Land Review (ELR), due for completion in 2019. The contents of the ELR will inform a later draft of this report.

# Linking Population & Employment

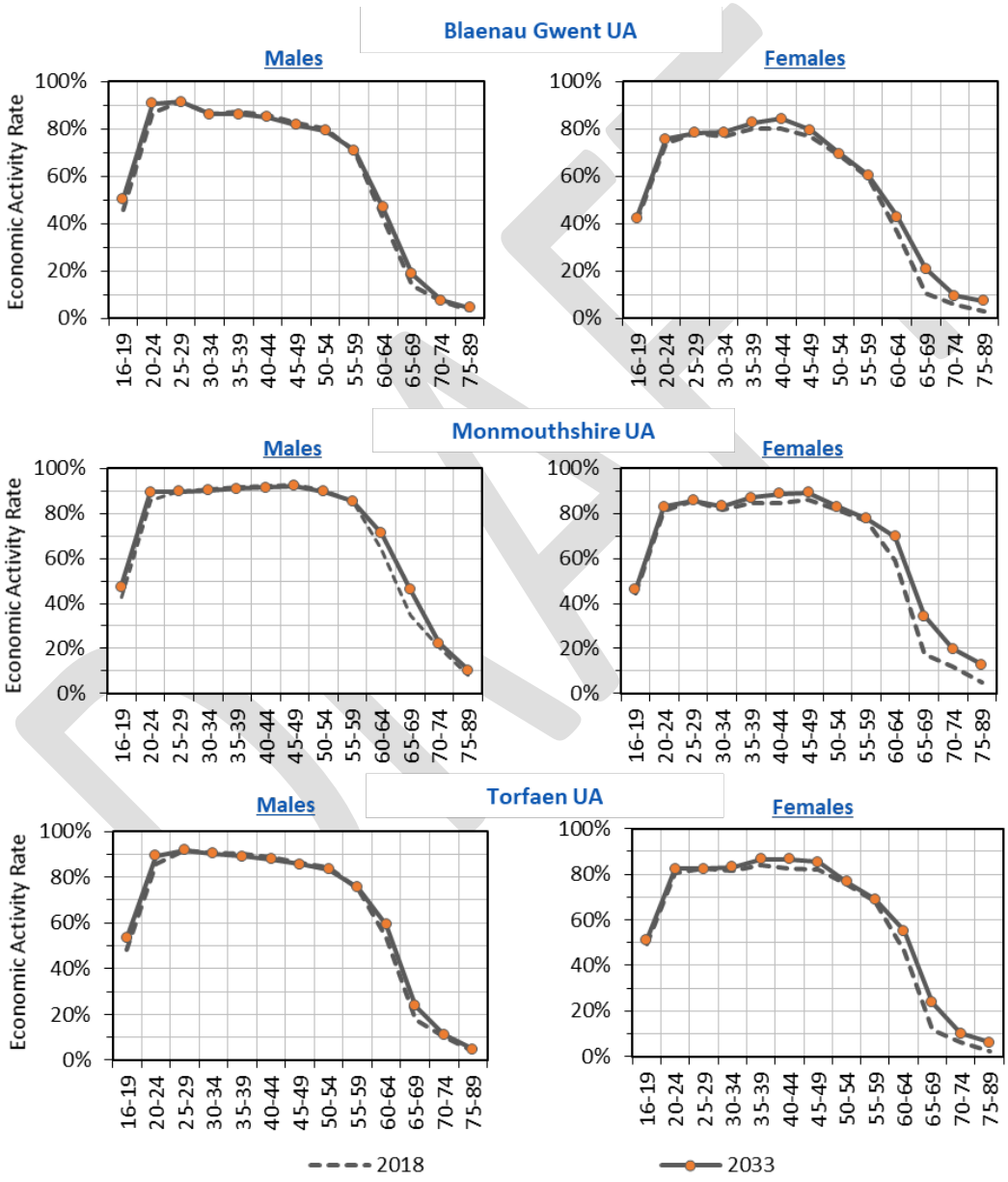
5.8 Using POPGROUP technology, it is possible to consider the potential labour force and employment growth that could be supported by the WG and demographic trend-based scenarios presented in Section 4. Key to considering the relationship between the changing size of the resident population, labour force and employment growth are three economic assumptions on (i) economic activity rates (also known as labour force participation rates), (ii) unemployment rate and (iii) commuting ratio.

5.9 **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, Blaenau Gwent, Monmouthshire and Torfaen's 2011 Census economic activity rates have been adjusted in line with

[23] An adjustment has been applied to the Radical Structural Change jobs growth range presented in the Economies of the Future report to take account of 'double jobbing'. The adjustment has been based on Monmouthshire's long-term (2004–2018) average of percent of people with a second job. The resultant employment growth under the 'Radical Structural Change' scenarios has been distributed using a similar profile to 'UK Growth Rate' forecast, to provide an annual breakdown for the 2018–2033 plan period.

the Office for Budget Responsibility's (OBR's) (July 2018) forecast[24] of long-term changes to age-specific labour force participation.

5.10 Applying OBR forecasts to each of the three authorities 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 29). The male 35–54 age groups are expected to experience a small decline in economic 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 by approximately 2 percentage points in each authority, from 57% to 55% in Blaenau Gwent, 61% to 59% in Monmouthshire and 60% to 58% in Torfaen.




[24] https://obr.uk/fsr/fiscal-sustainability-report-july-2018/

Figure 29: Economic activity rates by age group and sex
(Source: 2011 Census, OBR)

5.11 The **unemployment rate** determines the proportion of the labour force that is unemployed (and as a result, the proportion that is employed). Blaenau Gwent, Monmouthshire and Torfaen experienced a period of higher unemployment over the 2009–2013 period, reflecting national trends (Figure 30). Between 2013 and 2017 Blaenau Gwent and Monmouthshire's unemployment rate fell to its lowest point recorded since 2004 (5.4% and 3.0% respectively), whilst Torfaen recorded a small increase in 2017 (4.9%). National unemployment rates have remained lower than recorded for Blaenau Gwent throughout the 2004–2017 period, however the difference between the two has reduced over the latter years of the historical period.

5.12 In the demographic scenario analysis presented here, the unemployment rate tracks historical data to 2017, remaining fixed thereafter for each of the three authorities. In line with Blaenau Gwent's policy objective to reduce unemployment in the authority, the scenarios also consider the potential impact of a reduction in the unemployment rate (UR Reducing), to achieve the lowest national rate (4.6%) by the end of the plan period.

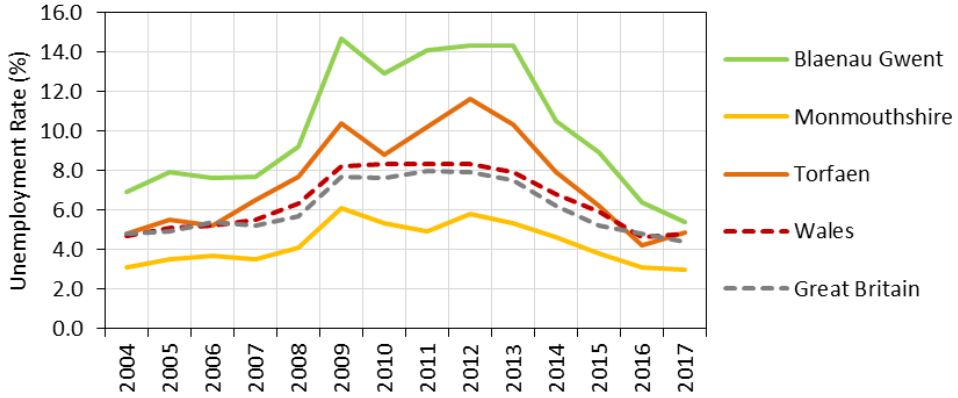



Figure 30: Unemployment rate 2004–2017 (Source: ONS model-based estimates)

5.13 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).

5.14 The 2011 Census recorded 28,400 workers living in Blaenau Gwent and 22,115 people working in the UA. The balance between the two results in a large net out-commuting ratio of 1.28 (i.e. more workers living in the UA than employment available), compared to 1.20 in the 2001 Census. Figure 31 summarises where the majority of workers in Blaenau Gwent commute to and from.

5.15 Approximately 59% of workers in Blaenau Gwent are recorded to both live and work within the UA, with 8% commuting out to neighbouring Monmouthshire and Caerphilly, 6% to Torfaen and 5% to Newport (Figure 31). Of the people working in Blaenau Gwent, 75% are also resident in the UA, whilst 7% commute from Caerphilly and 3% from neighbouring Monmouthshire and Torfaen.

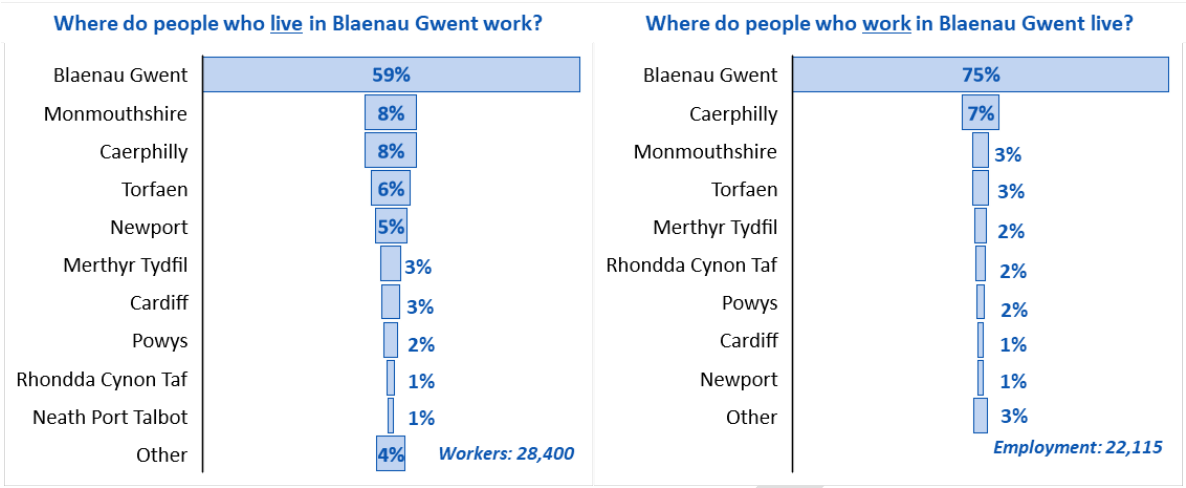



Figure 31: Blaenau Gwent commuting flows (Source: 2011 Census)

5.16 In Monmouthshire, 43,210 workers were recorded in the 2011 Census, with 38,458 people recorded as working in the UA, resulting in a net out-commuting ratio of 1.12. This is a higher net out-commute than recorded in the 2001 Census (1.10), driven by a greater increase in the number of workers in Monmouthshire.

5.17 Of the workers living in Monmouthshire, 59% are recorded to both live and work within the UA, with 9% commuting to Newport, 5% to Torfaen, 4% to Cardiff and 3% to Bristol and South Gloucestershire (Figure 32). Of the people working in Monmouthshire, 66% also live in the UA, 6% travel from Torfaen and Blaenau Gwent and 5% from Newport.

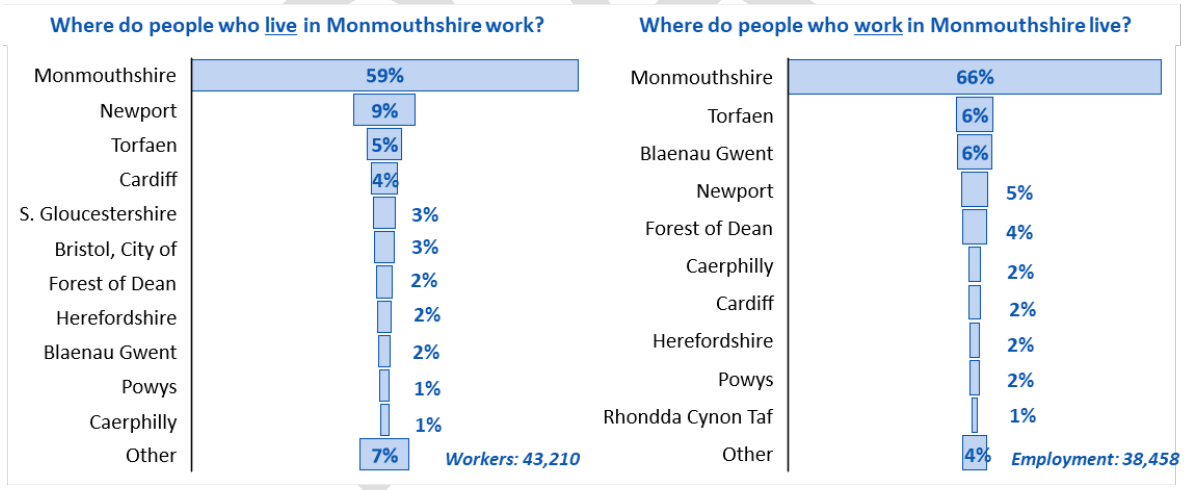



Figure 32: Monmouthshire commuting flows (Source: 2011 Census)

5.18 The 2011 Census recorded 40,415 workers in Torfaen and 39,029 people working within the UA; a net out-commuting ratio of 1.04, compared to 1.09 recorded in the 2001 Census. Approximately 62% of people who live in Torfaen also work in the UA, whilst 15% commute to Newport, 6% to Monmouthshire and 5% to Cardiff (Figure 33). Of the people who work in Torfaen, approximately 64% also live in the area, whilst 10% commute in from Newport, 6% from Caerphilly and Monmouthshire, and 4% from Blaenau Gwent.

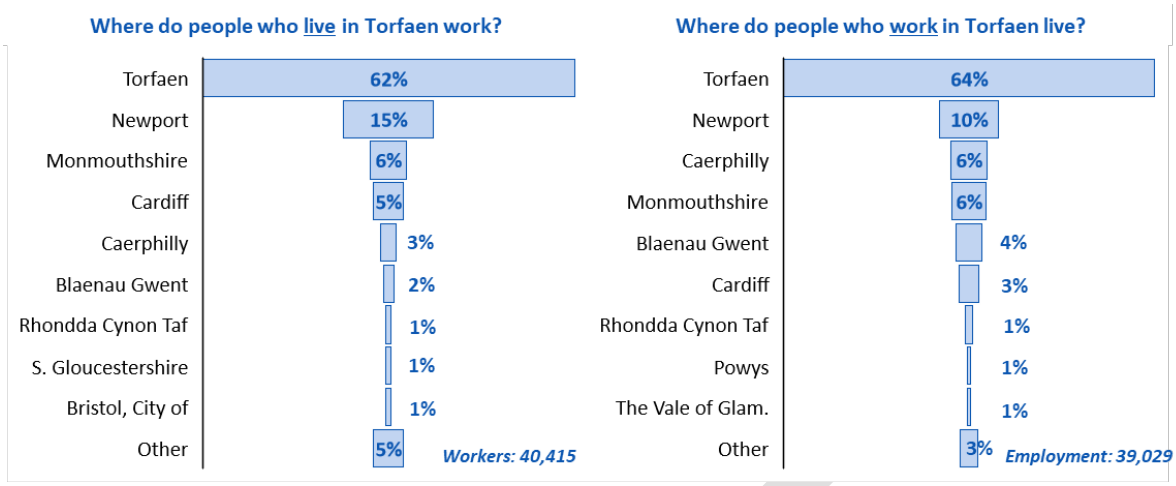



Figure 33: Torfaen commuting flows (Source: 2011 Census)

5.19 It is acknowledged that the Welsh Government also produces annual estimates of the number of people working and residing in authorities in Wales[25]. These statistics are subject to annual variation; however, the latest 2018 estimates indicate a larger net out-commute from Blaenau Gwent (1.55) and Torfaen (1.09) than recorded in the 2011 Census, whilst a net *in*-commute of 0.86 is estimated for Monmouthshire.

5.20 Changes in the number of resident workers in an area or employment available impacts the balance between the two indicators and therefore commuting ratio. In the demographic scenario analysis presented here, the 2011 Census commuting ratio has been applied in each area, fixed throughout the forecast period.

# Employment Growth

5.21 Using the key assumptions outlined above on economic activity, unemployment and commuting ratio (fixed) for the authorities, the estimated employment growth that could be supported by the WG and demographic trend scenarios has been calculated (Figure 34). For Monmouthshire, the average annual employment growth under the Oxford Economics 'Baseline', 'UK Growth Rate' and 'Radical Structural Change' (RSC) forecasts are also included.

5.22 It is estimated that the population change range of -2.6% to +7.2% (**WG 2014 (Principal)** and **PG Long Term Adjusted** respectively) in Blaenau Gwent could support an employment change of -106 to +61 pa over the 2018–2033 plan period. Assuming a reduction over the plan period alters the employment change range to -94 to +74 over the plan period; with a larger proportion of the resident labour force supporting economic growth in Blaenau Gwent.

[25] https://statswales.gov.wales/Catalogue/Business-Economy-and-Labour-Market/People-and-Work/Employment/Commuting/commutingpatterns-by-welshlocalauthority-measure

5.23 Whilst small population *growth* is estimated under the **Dwelling-led** and **PG Short Term** scenarios, the declining size of the labour force, coupled with an annual net out-commute, results in an annual decline in the level of employment that could be supported in Blaenau Gwent.

5.24 In Monmouthshire, population change of -4.4% to +17.8% (**Net Nil** and **PG Long Term Adjusted** respectively) is estimated to result in an average annual change in employment of -266 to +447 pa. Excluding the **PG Long Term Adjusted** scenario, the demographic trend scenarios estimate an average annual employment growth that is higher than forecast under the Oxford Economic 'Baseline' (+74 pa) but lower than the two 'Radical Structural Change' (RSC) forecasts (258–552 pa).

5.25 The average annual employment growth under the 'UK Growth Rate' economic forecast (+151), sits within the employment growth range estimated by the **PG Short Term** (+125) and **PG Long Term** (+199) scenarios. The higher employment growth supported by the PG Long Term scenario is driven by higher population change over the plan period. The **PG Long Term Adjusted** scenario results in significantly higher employment growth (+447 pa), driven by larger net in-migration flows in the labour force age groups.

5.26 The population growth range in Torfaen of 0.1% to 8.0% (**WG 2014 (Principal)** and **PG Long Term Adjusted** respectively) results in an average employment change of -103 to +137 pa over the 2018–2033 plan period. Greater retention of the resident 'working age' population under the PG and **Dwelling-led (5yr Average)** scenarios results in a larger labour force, with the potential to support higher employment growth over the plan period.

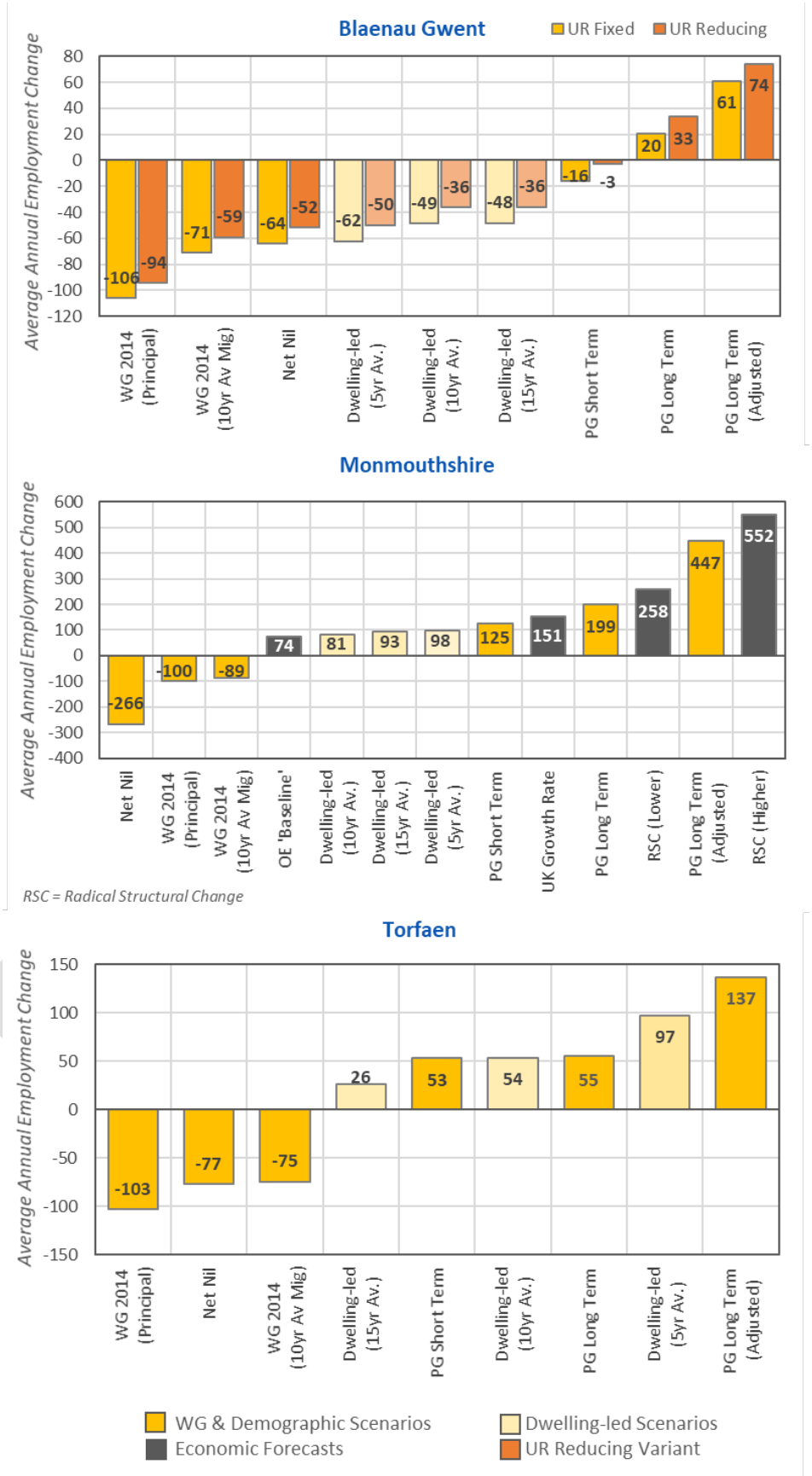



Figure 34: Average annual employment growth 2018/19–2032/33
*(Not on a consistent scale to highlight variation within each authority)*

5.27 The employment growth outcomes presented under each of the scenarios for Monmouthshire and Torfaen assume no change in unemployment or commuting balance over the plan period. Changes in migration patterns, economic aspirations or policy objectives could influence either of these assumptions. As exemplified in Blaenau Gwent, the potential impact of reducing the unemployment rate to reflect policy objectives, increases the level of employment that could be supported.

5.28 Migration to the areas could impact the commuting ratio balance, if a greater increase is assumed in the number of resident workers, relative to the level of employment available. This would increase net out-commuting from each of the authorities over the plan period, resulting in lower employment growth that could be supported under each of the scenarios. This would likely be the case with the **PG Long Term (Adjusted)** scenario, in which increased in-migration (associated with moves from Bristol and South Gloucestershire), could result in a larger net out-commute, particularly from Monmouthshire. Alternatively, policy objectives to provide higher employment growth opportunities in the County could reduce the need to commute out of the area for employment.

# Monmouthshire Employment-led Scenarios

5.29 Over the 2018–2033 plan period, the Oxford Economics (2018) 'Baseline' forecast for Monmouthshire estimates an average annual employment growth of +74 pa, which increases to +151 pa under the 'UK Growth Rate' economic forecast. The 'Radical Structural Change' economic scenario estimates a significantly higher employment growth range, from +258 pa to +552 pa (*Lower* and *Higher* end of the range respectively)[26].

5.30 Using an 'employment-led' configuration of the POPGROUP model, the population and housing growth implications of the 'Baseline', 'UK Growth Rate', 'Radical Structural Change (Lower)' (i.e. +258 pa) and 'Radical Structural Change (Higher)' (i.e. +552 pa) economic forecasts have been estimated. Refer to Figure 28 (page 40) for detail on the annual change in employment under each of the forecasts.

5.31 As a starting point, all employment forecasts have been run using economic assumptions that are consistent with those applied to Monmouthshire's demographic and dwelling-led scenarios (i.e. fixed unemployment rate and commuting ratio). The impact of an alternative unemployment rate and commuting ratio assumptions (drawn from the economic forecast and Census) is also considered (Table 5):

Table 5: Employment-led Scenarios & Assumptions

| Assumption | Identifier | Description | Economic Forecast |
|---|---|---|---|
| **Unemployment Rate** | *UR Reducing* | Unemployment rate reduces from current levels (3.0%) to 2.0% over the plan period, in line with the | Baseline |

[26] The 'Economies of the Future' report presents 'Radical Structural Change' jobs growth as a range. The lower and upper end of this range has been used in the Employment-led RSC scenarios (identified using a 'Lower' and 'Higher' suffix respectively), including an adjustment to take account of 'double-jobbing'.

| Assumption | Identifier | Description | Economic Forecast |
|---|---|---|---|
| | | underpinning Oxford Economic 'Baseline' forecast.<br><br>*Economic activity rate adjustments in line with the OBR forecast, commuting ratio remains fixed at the 2011 Census value (1.12).* | |
| **Commuting Ratio** | *CR Reducing* | Commuting ratio reduces from 2011 Census value (1.12) to 2001 Census value (1.10) over the plan period.<br><br>*Economic activity rate adjustments in line with the OBR forecast, unemployment rate remains fixed at current value (3.0%).* | Baseline<br><br>UK Growth Rate<br><br>Radical Structural Change (*Lower*)<br><br>Radical Structural Change (*Higher*) |
| | *CR Balanced* | Commuting ratio reduces from 2011 Census value (1.12) to a balanced commuting ratio of 1.00 by the end of the plan period.<br><br>*Economic activity rate adjustments in line with the OBR forecast, unemployment rate remains fixed at current value (3.0%).* | Radical Structural Change (*Lower*)<br><br>Radical Structural Change (*Higher*) |

5.32 Assuming no change in the commuting ratio balance and unemployment rate, it is estimated that a population growth range of 6.7% to 22.0% would be required to support the employment growth range of 74–552 pa (Baseline and RSC Higher respectively) (Table 6). Using assumptions from the WG 2014-based household projection model, this would result in an average annual dwelling growth range of +278 to +677 pa over the 2018–2033 plan period.

5.33 Assuming a fall in the unemployment rate under the **Baseline (UR Reducing)** scenario in line with the Oxford Economic forecast, reduces the need for net in-migration; as a larger proportion of the resident labour force supports the annual change in employment. As a result, lower population growth (5.8%) and dwelling growth (+255 dpa) is estimated under the **Baseline (UR Reducing)** scenario over the plan period.

5.34 Under each of the economic forecasts, returning the commuting ratio to a smaller net out-commute by the end of the plan period ('CR Reducing' variants), reduces population growth by approximately 2.0%; fewer people are estimated to commute out of the authority, thus reducing the need for in-migration to support the employment growth.

5.35 Employment growth under the 'Radical Structural Change' (RSC) scenarios is higher than estimated under the Oxford Economics 'Baseline' and 'UK Growth Rate' forecasts. As a result, creating notably more employment opportunities in Monmouthshire could impact the commuting ratio balance. To

consider the potential impact of this on population change, balanced commuting ratio (CR Balanced) RSC scenarios have been developed which assume a commuting ratio of 1.00 by the end of the plan period (i.e. number of people employed is broadly consistent with the number of workers).

5.36 Assuming a balanced commuting ratio by the end of the plan period, significantly reduces the level of net in-migration required to support the employment growth under the RSC Lower (+258 pa) and Higher (+552 pa) scenarios. As a result, population change reduces from 33.0% to 10.5% under the RSC Higher scenario, with an associated average annual dwelling growth of +382 dpa (**RSC Higher (CR Balanced)**). Under the RSC Lower scenario, population change reduces from 12.6% to 2.1%; an approximate 10% reduction. Population change under the **RSC Lower (CR Balanced)** scenario results in an average annual dwelling growth of +159 dpa over the plan period.

Table 6: Monmouthshire employment-led Baseline scenario outcomes 2018–2033

| Employment-led Scenarios | Change 2018–2033 | | | | Average per year | | |
|---|---|---|---|---|---|---|---|
| | Population Change | Population Change % | Households Change | Households Change % | Net Migration | Dwellings | Employment |
| RSC Higher | 21,009 | 22.0% | 9,693 | 23.8% | 1,516 | 677 | *552* |
| RSC Higher (CR Reducing) | 19,308 | 20.2% | 9,037 | 22.2% | 1,412 | 631 | *552* |
| RSC Higher (CR Balanced) | 10,071 | 10.5% | 5,467 | 13.4% | 845 | 382 | *552* |
| RSC Lower | 11,913 | 12.6% | 6,120 | 15.2% | 978 | 427 | *258* |
| RSC Lower (CR Reducing) | 10,375 | 11.0% | 5,523 | 13.7% | 883 | 386 | *258* |
| RSC Lower (CR Balanced) | 2,020 | 2.1% | 2,278 | 5.6% | 369 | 159 | *258* |
| UK Growth Rate | 8,616 | 9.1% | 4,820 | 12.0% | 782 | 337 | *151* |
| UK Growth Rate (CR Reducing) | 7,136 | 7.6% | 4,245 | 10.6% | 691 | 296 | *151* |
| Baseline | 6,393 | 6.7% | 3,976 | 9.8% | 639 | 278 | *74* |
| Baseline (UR Reducing) | 5,552 | 5.8% | 3,649 | 9.0% | 587 | 255 | *74* |
| Baseline (CR Reducing) | 4,938 | 5.2% | 3,410 | 8.4% | 549 | 238 | *74* |

Employment growth and economic activity rate assumptions are consistent for each economic forecast (refer to Figure 28 for an annual breakdown of employment growth applied in each scenario). Only the unemployment rate or commuting ratio differs between scenarios, identified by the 'UR' or 'CR' suffix respectively. RSC = Radical Structural Growth, with employment growth drawn from the range presented in the 'Economies of the Future' report.

5.37 Applying assumptions from the WG 2008-based household projection model to each of the employment-led scenarios, would increase the average annual dwelling growth by an *additional* 150–195 pa. Over the 2018–2033 plan period, this would increase the average annual dwelling growth range from 159–677 dpa under the WG 2014-based household model assumptions to 273–871 dpa under the WG 2008-based assumptions.

# 6 Summary

## Context

6.1 Blaenau Gwent CBC, Monmouthshire County Council and Torfaen CBC are in the process of updating their respective LDPs. 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, dwelling-led and employment-led scenarios[27].

6.2 Migration has an important bearing on population change, age profile, economic and housing growth in each of the areas. Whilst all three authorities have experienced an ageing population profile over the last sixteen years, it is Monmouthshire that has recorded the largest imbalance between the 'working age' and older population, a trend that will continue over the plan period.

6.3 The latest WG 2014-based 'Principal' population and household projections for the authorities suggest *lower* growth for Monmouthshire and Blaenau Gwent than previously estimated under the WG 2008-based projection. For Monmouthshire, this is driven by a larger negative impact of natural change, whilst lower growth in Blaenau Gwent is a result of net out-migration. Conversely, the latest WG projection estimates *higher* growth in Torfaen through greater retention of the population, coupled with positive natural change.

6.4 The WG 2014-based population and household projections present the starting point in the assessment of future housing growth in Blaenau Gwent, Monmouthshire and Torfaen. Acknowledging the importance of migration on population change in the three UAs, and in accordance with the WG Draft Development Plans Manual, four alternative trend scenarios have been presented 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 Long Term Adjusted** (higher in-migration from Bristol and South Gloucestershire) and a balanced (**Net Nil**) migration flow.

6.5 In addition to the WG and trend scenarios, a range of dwelling-led scenarios have been developed to consider the potential migration and subsequent population growth required to support a continuation of past housing completion rates, based on five, ten and fifteen-year trends. For Monmouthshire, the potential population and dwelling growth implications of the different scales of economic growth outlined in the 'Economies of the Future' report has also been considered, evaluating alternative assumptions on unemployment rates and commuting ratio.

6.6 Under all scenarios, the link between population and dwelling growth has been estimated using assumptions from the WG 2014-based household projection model. In line with the WG Draft

[27] The analysis for Blaenau Gwent and Torfaen will be updated following the completions of the ELR.

Development Plan Manual, the potential impact of higher household formation has also been considered, using assumptions from the WG 2008-based model. This results in a notable increase in the average annual dwelling growth estimated under each of the demographic scenarios for the three authorities.

# Growth Outcomes 2018–2033

6.7 For Blaenau Gwent, the dwelling growth range over the 2018–2033 plan period ranges from +19 dpa to +226 dpa under the 2014-based household model assumptions (Figure 35). The lower end of this dwelling growth range is the **WG 2014 (Principal)** scenario estimates population decline of -3% over the plan period. A continuation of past housing completion rates averaging 80–102 dpa, maintains a stable population growth rate over the plan period (c. +1%). The PG scenarios capture the latest historical estimates for Blaenau Gwent, basing their migration flow assumptions on alternative histories. Larger net in-migration under the **PG Long Term** scenarios results in higher annual dwelling growth, whilst the **PG Short Term** scenario results in an average annual dwelling growth of +141 dpa (2018–2033). All scenarios estimate higher population and dwelling growth than estimated under the **WG 2014-based (Principal)** projection.

6.8 Over the 2018–2033 plan period, dwelling growth for Monmouthshire ranges from -12 dpa (**Net Nil)** to +677 dpa (**Employment-led RSC Higher**) (Figure 35). Population growth of +1% under the **WG 2014 (Principal)** scenario, results in an average annual dwelling growth of +115 dpa. Migration has historically been a key contributor to population growth in Monmouthshire. A continuation of historical migration trends under the PG scenarios, results in higher net in-migration to the UA than estimated under the **WG 2014 (Principal)** and dwelling-led scenarios, resulting in a population and dwelling growth range of 8%–18% and 293–534 dpa respectively.

6.9 The Oxford Economics 'Baseline' forecast for Monmouthshire, operating in tandem with assumptions on economic activity rates, unemployment and commuting, is estimated to require higher net in-migration to support the average annual change in employment (+74 pa), than forecast under the **WG 2014 (Principal)** scenario. With no change in the commuting ratio or unemployment rate, population growth of +7% and an associated dwelling growth of +278 dpa is estimated to support the '**Baseline**' employment growth. An improvement in the unemployment rate reduces the need for net in-migration to support economic growth, resulting in lower population and dwelling growth (6% and +255 dpa respectively).

6.10 The employment growth estimated under the 'UK Growth Rate' forecast results in higher population growth (8% to 9%), with an associated average annual dwelling growth of 296–337 dpa over the plan period. Assuming either little or no change in the commuting ratio under the Radical Structural Change (RSC) employment growth scenarios (Lower and Higher) estimates population and dwelling growth at the upper end of the growth range. However, reducing the commuting ratio balance over the plan period ('CR Balanced') significantly reduces the population and dwelling growth required to support the employment growth forecasts. Under the **RSC Higher (CR Balanced)** scenario, population growth (11%) and average annual dwelling growth (+341 dpa) remains higher than the demographic trend scenarios (notwithstanding **PG Long Term Adjusted**), and closely aligned to the **PG Long Term**

growth outcomes. Under the **RSC Lower (CR Balanced)** scenario, population and dwelling growth (2% and 159 dpa respectively) is higher than the **WG 2014 (Principal)** scenario, but remains lower than the PG trend scenarios.

6.11 For Torfaen, the **WG 2014 (Principal)** scenario estimates the lowest population change (0%) and dwelling growth (+81 dpa) over the plan period, whilst the **PG Long Term Adjusted** scenario results in the highest growth (+8% and +275 dpa) (Figure 35). A continuation of higher housing completion rates recorded over the last five years, results in population growth of 7%. Similarly, the higher net in-migration recorded over the latter years of the historical period are captured in the **PG Short Term** scenario, resulting in population growth of +6% and an associated dwelling growth of +237 dpa.

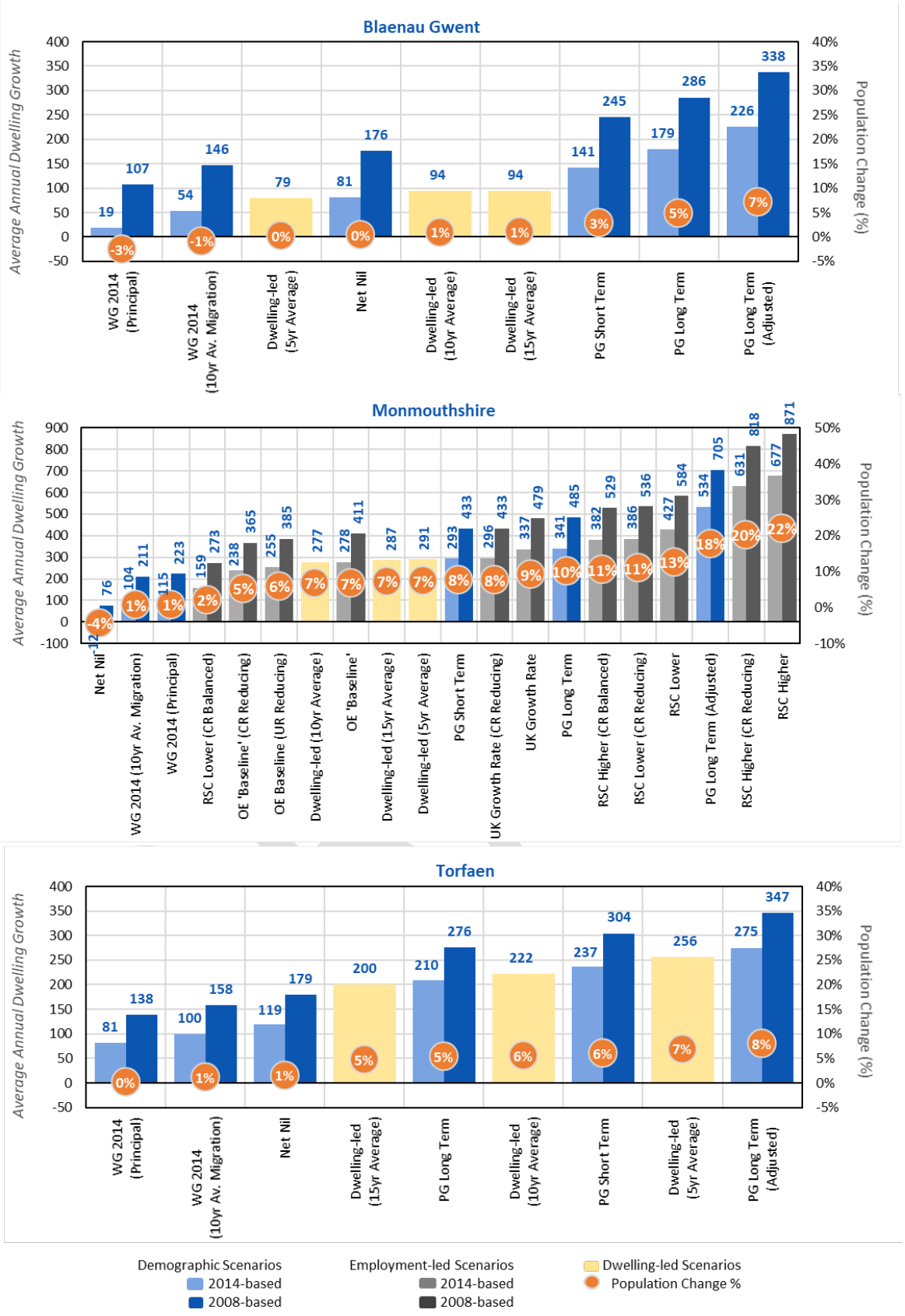



Figure 35: Average annual dwelling growth and population change (%) – Blaenau Gwent, Monmouthshire & Torfaen (2018–2033)

*(Not on a consistent scale to highlight variation within each authority)*

6.12 Population ageing in the three authorities over the LDP plan period is unavoidable, with an imbalance between the 'working age' and older population likely leading to increased demand and pressures on health and social care services. The **WG 2014 (Principal)** scenario presents a low growth outlook for the three authorities, with migration having a 'dampening' impact on population change in Blaenau Gwent and Torfaen. Whilst migration can do little to change the natural ageing of the resident population, it can seek to boost the labour force age groups that will support economic growth within the UAs. However, it is acknowledged that changes to migration patterns (if not matched with economic growth), will inevitably impact the commuting balance of the three authorities.

6.13 In seeking to achieve its economic growth aspirations, higher employment in Monmouthshire could either; (i) attract more people to the area through migration, (ii) and/or seek to reduce its net out-commuting flow. The analysis presented here has considered the potential impact of significant changes in the commuting ratio, achieving a 'balanced' commuting ratio by the end of the plan period.

6.14 In Blaenau Gwent reducing the unemployment rate to reflect policy objectives, results in a higher level of employment growth under each of the demographic trend scenarios. This will be further considered in the context of Blaenau Gwent's emerging Employment Land Review (ELR).

6.15 This report and its content are presented to the three councils (Blaenau Gwent, Monmouthshire and Torfaen) to inform their respective LDP processes. Amendments and updates will be provided as new evidence on economic outlook is provided for Blaenau Gwent and Torfaen.

# Appendix A
# Monmouthshire Outside Brecon Beacon NP

## Scenario Outcomes

A.1 The population growth outcomes under each of the demographic scenarios (referred to in Section 4) for Monmouthshire *excluding* the part that falls within Brecon Beacon National Park are presented in Figure 36 and Table 7.

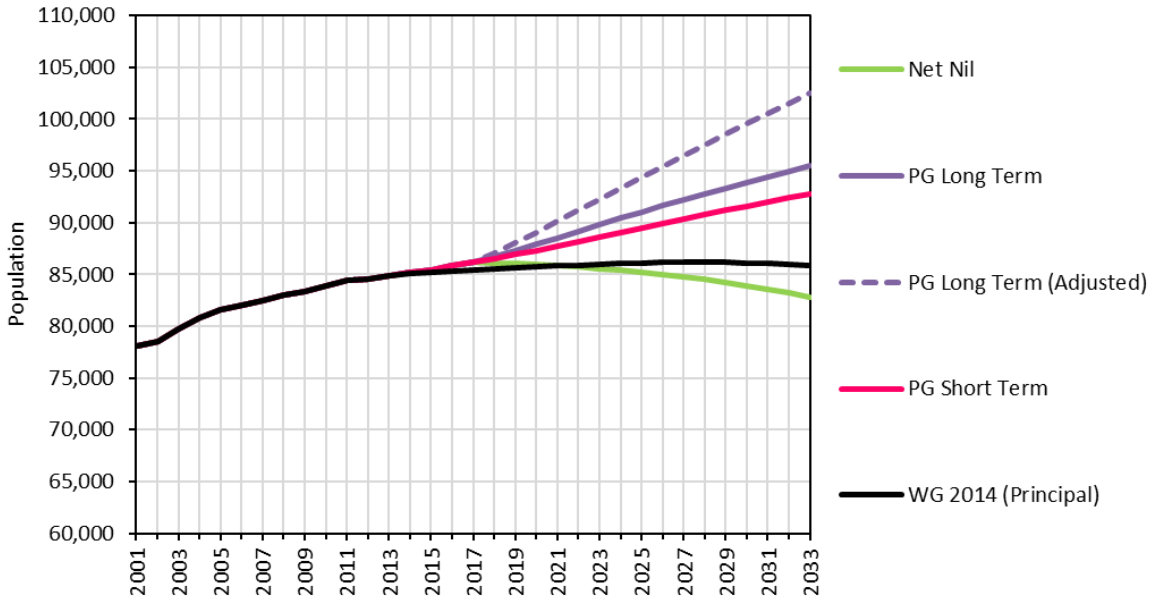



Figure 36: Monmouthshire (excluding the Brecon Beacon National Park) scenario outcomes

Table 7: Monmouthshire (excluding Brecon Beacon NP) scenario outcomes 2018–2033

| Scenario | Change 2018–2033 | | | | Average per year | |
|---|---|---|---|---|---|---|
| | Population Change | Population Change % | Households Change | Households Change % | Net Migration | Dwellings |
| PG Long Term (Adjusted) | 15,421 | 17.7% | 7,017 | 18.9% | 1,121 | 489 |
| PG Long Term | 8,758 | 10.1% | 4,522 | 12.3% | 738 | 315 |
| PG Short Term | 6,273 | 7.2% | 3,725 | 10.1% | 591 | 260 |
| **WG 2014 (Principal)** | **328** | **0.4%** | **1,432** | **3.9%** | **268** | **100** |
| Net Nil | -3,305 | -3.8% | 86 | 0.2% | 24 | 6 |

Note: Scenario ranked in order of population change. Household and dwelling growth estimated using assumptions from WG 2014-based household model for Monmouthshire outside of the Brecon Beacon National Park.

# Appendix B
# POPGROUP Methodology & Assumptions

## 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 method.

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 labour force, for areas and social groups. The main POPGROUP model (Figure 37) is a cohort component model, which enables the development of population forecasts based on birth, death and migration inputs and assumptions.

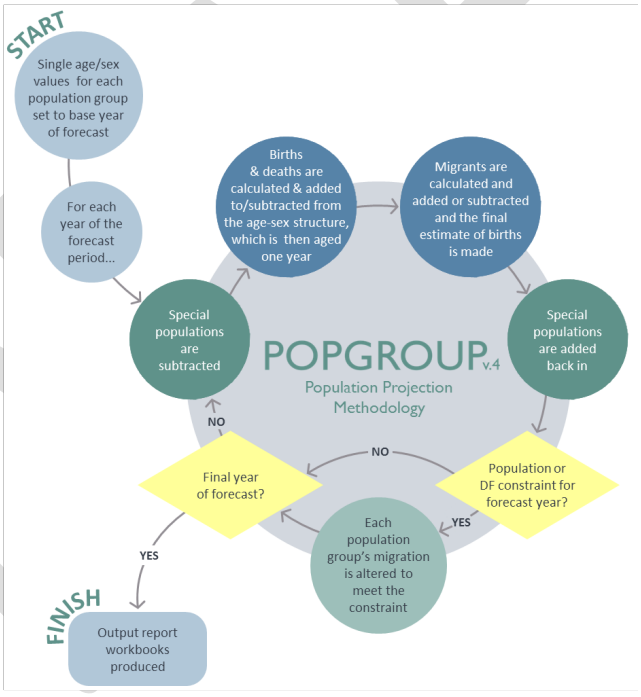
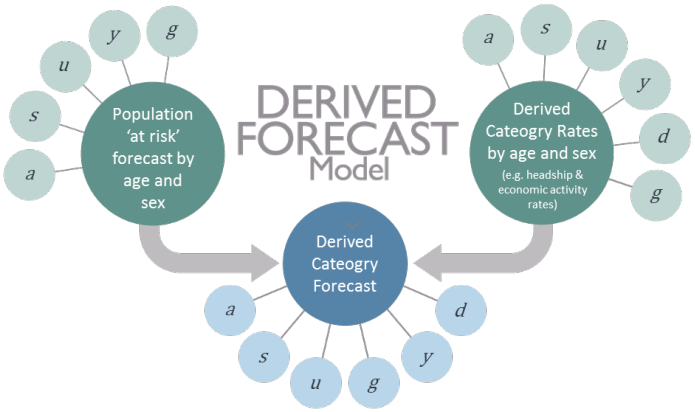



Figure 37: POPGROUP population projection methodology

B.3 The Derived Forecast (DF) model (Figure 38) sits alongside the population model, providing a membership rate and average household size model for household projections, and an economic activity rate model for labour force projections.




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

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

Figure 38: Derived Forecast (DF) methodology

B.4 For further information on POPGROUP, please refer to the Edge Analytics website: https://www.edgeanalytics.co.uk/

# Data Inputs & Assumptions

B.5 Edge Analytics has developed a suite of demographic, dwelling-led and employment-led scenarios for Blaenau Gwent, Monmouthshire and Torfaen using POPGROUP and the DF model. The POPGROUP suite of demographic models draw data from a number of sources, building an historical picture of population, households, fertility, mortality and migration on which to base its scenario forecasts.

B.6 Using historical evidence for 2001–2017, in conjunction with information from Welsh Government (WG) population and household projections, a series of assumptions have been derived which drive scenario forecasts.

B.7 The following scenarios have been produced for all three authorities:

- WG 2014 (Principal)
- WG 2014 (10yr Average Migration)
- PG Short Term
- PG Long Term
- PG Long Term (Adjusted)
- Net Nil
- Dwelling-led (5yr Average)
- Dwelling-led (10yr Average)
- Dwelling-led (15yr Average)

B.8 The employment-led scenarios below have been developed for Monmouthshire only, using economic forecasts from the 'Economies of the Future' report:

- Baseline
- Baseline (UR Reducing)
- Baseline (CR Reducing)
- UK Growth Rate
- UK Growth Rate (CR Reducing)
- RSC Higher
- RSC Higher (CR Reducing)
- RSC Higher (CR Balanced)
- RSC Lower
- RSC Lower (CR Reducing)
- RSC Lower (CR Balanced)

B.9 In the following sections, a narrative on the data inputs and assumptions underpinning the scenarios is presented. Population change is driven by assumptions on births, deaths, internal and international migration components of change. The assumption underpinning each of the scenarios is presented in the following sections. All scenarios have been configured at Unitary Authority (UA) level, with demographic scenarios for Monmouthshire also configured for the area outside of the Brecon Beacon National Park. These forecasts have been configured using a combination of Census Output Area (OA) data to derived population and components-of-change statistics. Area-specific assumptions on fertility, mortality, migration and household formation have been used to disaggregate the UA-level population growth to the area of Monmouthshire inside and outside the Brecon Beacons National Park.

## Population, Births & Deaths

### *Population*

B.10 In each scenario, historical population statistics are provided by the mid-year population estimates (MYEs), with all data recorded by single-year of age and sex. These data include the revised MYEs for 2002–2010 (which were rebased by the ONS in May 2013), providing consistency in the measurement of the components of change (i.e. births, deaths, internal and international migration) between the 2001 and 2011 Censuses. In addition, the ONS revisions made to 2012–2016 MYEs in March 2018 are also included, these provided a revised estimated of international migration at local authority level.

B.11 In the WG 2014-based scenarios, the historical MYEs are used up to 2014. From 2014, future population counts are provided by single-year of age and sex to ensure consistency with the trajectory of the WG 2014-based Principal and 10yr Average Migration variants for each of the areas.

B.12 In the PG, dwelling-led and employment-led scenarios, historical MYEs are used up to 2017.

### *Births & Fertility*

B.13 In each scenario, historical mid-year to mid-year counts of births by sex have been sourced from the ONS MYEs for Blaenau Gwent, Monmouthshire and Torfaen.

B.14 In the **WG 2014-based Principal** and **10yr Average Migration** scenarios, historical births are used from 2001/02 to 2013/14. From 2014/15, future counts of births are specified, to ensure consistency with the WG 2014-based projections.

B.15 Under the **PG**, **dwelling-led** and **employment-led** scenarios, historical births are used from 2001/02 to 2016/17. From 2017/18, area-specific (i.e. Blaenau Gwent/Monmouthshire/Torfaen) age-specific fertility rate (ASFR) schedule, derived from the WG 2014-based Principal projection, is included in the POPGROUP model assumptions. In combination with the 'population-at-risk' (i.e. all women between the ages of 15–49), the area-specific age-specific fertility rate (ASFR) schedule together with long-term assumptions on future fertility rates, provide the basis for the calculation of births in each year of the forecast period (i.e. from 2017/18 onward). Long-term assumptions on changes in age-specific fertility rates are taken from the WG 2014-based Principal projection.

### *Deaths & Mortality*

B.16 In each scenario, historical mid-year to mid-year counts of deaths by five-year age group and sex have been sourced from the ONS MYEs for Blaenau Gwent, Monmouthshire and Torfaen.

B.17 In the **WG 2014-based Principal** and **10yr Average Migration** scenarios, historical deaths are used from 2001/02 to 2013/14. From 2014/15, future counts of deaths are specified, to ensure consistency with the WG 2014-based projections.

B.18 Under the **PG**, **dwelling-led** and **employment-led** scenarios, historical deaths are used from 2001/02 to 2016/17. From 2017/18, area-specific age-specific mortality rate (ASMR) schedule, derived from the WG 2014-based Principal projection, is included in the POPGROUP model assumptions. Long-term assumptions on changes in age-specific mortality rates are taken from the WG 2014-based Principal projection.

B.19 In combination with the 'population-at-risk' (i.e. the whole population), the area-specific ASMR and future mortality rate assumptions provide the basis for the calculation of deaths in each year of the forecast period (i.e. from 2017/18 onward).

## Migration

### *Internal Migration*

B.20 In each scenario, historical mid-year to mid-year estimates of internal in- and out-migration by five-year age group and sex have been sourced from the 'components of change' files that underpin the ONS MYEs.

B.21 In the **WG 2014-based Principal** and **10yr Average Migration** scenarios, historical counts of in- and out-migrants are used from 2001/02 to 2013/14. From 2014/15, future counts of migrants are specified, to ensure consistency with the WG 2014-based official projections.

B.22 In the **PG, dwelling-led** and **employment-led** scenarios, historical counts of internal in- and out-migrants are used from 2001/02 to 2016/17. In the PG scenarios, the relevant historical time period

is used to derive the area-specific (i.e. Blaenau Gwent/Monmouthshire/Torfaen) age-specific migration rate (ASMigR) schedule. ASMigRs for internal migration are used to determine the future number of internal in- and out-migrations by age and sex, based on the rates evidenced over a given historical period. In the **PG Short Term** scenario, a six-year internal migration history is used (2011/12–2016/17). In the **PG Long Term** and **PG Long Term (Adjusted)** scenarios, a sixteen-year history is used 2001/02–2016/17. Included in the **PG Long Term (Adjusted)** scenario is an uplift to the internal *in*-migration schedule of rates, based on the last five-years of migration flows from Bristol and South Gloucestershire to each of the three authorities. The following steps summarise the method:

- **Step 1:** Calculate the historical 5-year (2012/13–2016/17) average migration flow from the combined Bristol & South Gloucestershire area to each of the three authorities (Blaenau Gwent, Monmouthshire and Torfaen)
- **Step 2:** Calculate the schedule of migration rates by single-year of age and sex based on a long-term migration history (2001/02–2016/17), but including the 'uplift' estimated in Step 1. This results in a higher migration schedule for each authority.
- **Step 3:** Apply the 'adjusted' schedule of migration rates to the PG Long Term Adjusted scenario to calculate future internal in-migration flows to each authority. Out-migration counts are consistent with the **PG Long Term** scenario

B.23 Under the **Net Nil** scenario, inflows and outflows are balanced, resulting in zero net migration. In the **Dwelling-led** and **Employment-led** scenarios, historical counts of internal in- and out-migrants are used from 2001/02–2016/17. From 2017/18, these scenarios then calculate their own internal migration assumptions to ensure an appropriate balance between the population and targeted increase in dwellings or employment that is defined in each year of the forecast period. A higher level of net internal migration will occur if there is insufficient resident population or resident labour force to meet the forecast level of dwellings or employment respectively. In the Dwelling-led and Employment-led scenarios, the profile of internal migrants is defined by an area-specific age-specific migration rate (ASMigR) schedule, derived from the WG 2014-based Principal projection.

B.24 In the case of internal migration, the area-specific age-specific migration rate (ASMigR) schedules are applied to an external UK 'reference' population (i.e. the population 'at risk' of migrating to Blaenau Gwent, Monmouthshire and Torfaen). This is different to the other components (i.e. births, deaths, internal out-migration), where the schedule of rates is applied to the area-specific population (i.e. the population 'at risk' of migrating out of the area).

## *International Migration*

B.25 Historical mid-year to mid-year counts of immigration and emigration by five-year age groups and sex have been sourced from the 'components of population change' files that underpin the ONS MYEs. Any 'adjustments' made to the MYEs to accounts for asylum cases are included in the international migration balance. In all scenarios, future international migrant counts are specified.

B.26 In the **WG 2014-based Principal** and **10yr Average Migration** scenarios, historical counts of migrants are used from 2001/02 to 2013/14. From 2014/15, the international in- and out-migration counts are drawn directly from the WG 2014-based projections.

B.27 In the PG scenarios, historical counts of immigration and emigration are used from 2001/02 to 2016/17. From 2017/18, future international migration counts are based on the area-specific historical migration data. In the **PG Short Term** scenario, a six-year international migration history is used (2011/12–2016/17). In the **PG Long Term** and **PG Long Term (Adjusted)** scenarios, a sixteen-year history is used (2001/02–2016/17). Under the **Net Nil** scenario, immigration and emigration is balanced, resulting in zero net international migration. In all PG scenarios, an ASMigR schedule of rates is derived from the relevant migration history and is used to distribute future counts by single year of age and sex.

B.28 Implied within international migration component of change in the **PG Short Term**, **Long Term** and **Long Term (Adjusted)** scenarios is an 'unattributable population change' (UPC) figure, which the ONS identified within its 2002–2010 revisions. The POPGROUP model has assigned the UPC to international migration as it is the component with the greatest uncertainty associated with its estimation.

B.29 In the **Dwelling-led** and **Employment-led** scenarios, historical counts of immigration and emigration are used from 2001/02 to 2016/17. From 2017/18, international migration counts are taken from the WG 2014-based Principal projection (i.e. counts are consistent with the WG 2014-based Principal scenario). An ASMigR schedule of rates from the WG 2014-based projection is used to distribute future counts by single year of age.

# Households & Dwellings

B.30 The 2011 Census defines a household as:

> *"one person living alone, or a group of people (not necessarily related) living at the same address who share cooking facilities and share a living room or sitting room or dining area."*

B.31 In POPGROUP, a dwelling is defined as a unit of accommodation which can either be occupied by one household or vacant.

B.32 Apart from in the **Dwelling-led** scenarios, the household and dwelling implications of the population growth trajectory have been evaluated through the application of membership rates, average household size, communal population statistics and a dwelling vacancy rate. These data assumptions have been sourced from the WG 2008-based and 2014-based household projection models and 2011 Census.

B.33 In the **Dwelling-led** scenarios, these assumptions are used to determine the level of population growth required by the defined dwelling growth trajectory.

## Membership Rates

B.34 The membership rates are used to calculate the proportion of the household population in each household category by age group and sex (Table 8), taken from the WG 2014-based household model for Blaenau Gwent, Monmouthshire and Torfaen. The household population is then converted into

households using average household size assumptions, taken from the WG 2014-based household model. Under the sensitivity scenarios, membership rate assumptions are taken from the WG 2008-based household projection model.

Table 8: WG Household Categories (Source: WG)

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

## Communal Population Statistics

B.35 Household projections in POPGROUP exclude the population 'not-in-households' (i.e. the communal/institutional population). These data are drawn from the WG 2014-based household projections for Blaenau Gwent, Monmouthshire and Torfaen. Examples of communal establishments include prisons, residential care homes and student halls of residence.

B.36 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 proportion of the population not-in-households is recorded. Therefore, the population not-in-households for ages 75–85+ varies across the forecast period depending on the size of the population.

## Vacancy Rate

B.37 The relationship between households and dwellings is modelled using a 'vacancy rate', derived from the 2011 Census using statistics on households (occupied household spaces) and dwellings (shared and unshared).

B.38 A vacancy rate of 4.8% for Blaenau Gwent, 4.2% for Torfaen, 4.5% for Monmouthshire UA and 4.4% for the part of Monmouthshire outside of the Brecon Beacon National Park, has been applied, fixed throughout the forecast period. Using the vacancy rate, the 'dwelling requirement' of each household growth trajectory has been evaluated.