Queensland Government household and dwelling projections, 2015 edition: Methodology

Introduction

The Queensland Government produces projections of dwellings, households by household type and projected populations by living arrangement for the following geographic levels:

- State of Queensland
- the Greater Brisbane Greater Capital City Statistical Area (GCCSA)
- the 10 statistical areas level 4 (SA4s) in the remainder of Queensland which include:
  - Cairns
  - Darling Downs - Maranoa
  - Fitzroy
  - Gold Coast
  - Mackay
  - Queensland - Outback
  - Sunshine Coast
  - Toowoomba
  - Townsville
  - Wide Bay
- local government areas (LGAs).

Scope

Projected households refer to people living in private dwellings only. This is in contrast to population projections which are based on estimated resident population, which includes persons resident in both private and non-private dwellings. For the purposes of these projections, those living in non-private dwellings are included in the analysis of living arrangements, and then excluded from the projections of households.

Projected dwellings include both occupied and vacant private dwellings. Private dwellings include structural dwellings (e.g. houses, flats, townhouses) but exclude temporary dwellings (e.g. tents, caravans). Non-private dwellings (e.g. hotels, hospitals, boarding schools, and mining camps) are excluded.

Caveats

In addition to assumptions about living arrangements and propensities for household formation and dwelling construction, these projections depend on the core assumptions of fertility, mortality and migration underlying the Queensland Government population projections, 2015 edition. Consequently, these projections of households and dwellings have a greater degree of uncertainty than those population projections. Furthermore, the reliability of projections declines as the time horizon is extended and the area under consideration is reduced.

Household and dwelling projections should not be interpreted as precise point estimate forecasts or predictions. Rather, the projections reflect the outcomes of applying a set of assumptions about living arrangements, household formation and dwelling construction. While past and current trends provide background to the possible demographic outlook, there is uncertainty around how these trends will develop over a long term projection horizon.

To account for this uncertainty, a range of possible outcomes rather than a single projection series provides a more realistic view of the possible scenarios for future household and dwelling size and formation. As such, three projection series (low, medium, high) have been produced for households and dwellings.
Household projections

State, Greater Brisbane GCCSA and statistical areas level 4 (SA4s)

The 2015 edition Queensland Government household projections for the state, GCCSA and 10 remaining SA4s were compiled using a sequential propensity household projection model. The calculations begin with an exogenously projected population by five-year age group, in this case the Queensland Government population projections, 2015 edition. In a sequence of calculations, the number of persons in each age group is divided up into increasingly detailed living arrangement categories, with the process continuing until there are a total of 13 living arrangement types:

- Persons in non-private dwellings
- Child aged under 15 years living with two parents
- Child aged under 15 years living with a single parent
- Child aged 15 years and over living with parents
- Partnered with child(ren) aged under 15 years
- Partnered with child(ren) aged 15 years and over only
- Partnered with no children
- Single parent child(ren) under 15 years
- Single parent with child(ren) aged 15 years and over only
- Living with a family (related or unrelated individual)
- Living in an Other Family
- Living alone
- Living in a group household.

Figure 1 outlines this process of projecting the population by living arrangement.

Following this process, individuals in living arrangement categories are then allocated to families and households by type. For example, two persons in the living arrangement ‘partnered with no children’ form one ‘couple only’ family, each person in the living arrangement ‘single parent’ forms one ‘single parent’ family, and about 2.2 people on average who are ‘living in a group household’ form one group household (on the basis of recent census data). A ‘group household’ is a household consisting of two or more unrelated people where all persons are aged 15 years and over. ‘Other family’ is defined as a group of related individuals residing in the same household, who cannot be categorised as belonging to a couple or one parent family. To allow for multi-family households, a small proportion of families of all types are allocated to this particular household type (on the basis of recent census data). The remaining majority of families form single family households. Lone person households, by definition, equal the number of lone persons.

Local government area (LGA)

Household projections by household type for LGAs are not directly modelled, but are instead created by summing SA2 level projections (see section below), or by splitting an SA2 into LGAs (in the few cases where LGAs are smaller than an SA2).

Statistical area level 2 (SA2)

The SA2 projections of households by household type are constructed using SA2 level dwelling projections (see the SA2 section under the Dwelling projections category below) and information on household type, dwelling type and occupancy rates at the SA2 level from the Australian Bureau of Statistics (ABS) 2011 Census of Population and Housing. The SA2 results are then scaled to the GCCSA and SA4 level household projections by household type (see section above).

The SA2 projections should be viewed as working calculations and not as a separate projection series in their own right. They have been constructed for the purpose of compiling LGA level household projections by household type.

1 http://www.demographic-research.org/volumes/vol28/24/
Figure 1 Outline of the sequential propensity household model living arrangement calculations

Dwelling projections

State, Greater Brisbane GCCSA and statistical areas level 4 (SA4s)

The 2015 edition Queensland Government dwelling projections for the state, GCCSA and 10 remaining SA4s are compiled by making assumptions about the future distribution of household type by dwelling type, and then applying this distribution to the Queensland Government household projections, 2015 edition, by household type.

The future distribution of household type by dwelling type was developed by trending forward the changes observed between the ABS 2001 and 2011 Censuses of Population and Housing.

Results for Greater Brisbane GCCSA and the 10 remaining Queensland SA4s are scaled to the state-level projections.

Local government area (LGA)

Dwelling projections for LGAs are not directly modelled, but are instead created by summing dwelling projections at the SA2 level (see section below), or by splitting an SA2 into LGAs (in the few cases where LGAs are smaller than an SA2).

Statistical area level 2 (SA2)

Dwelling projections at the SA2 level are an output from the modelling of projected populations at the SA2 level. For rural SA2s, total populations are projected using a simple model – the average of:

- a constant share of the State’s projected population, and
- a projection incorporating a share of projected State population growth.

Detached and attached dwelling growth is then allocated to these rural SA2s (to account for projected population growth) using dwelling occupancy rates sourced from the 2011 Census of Population and Housing. Rural SA2s with projected population declines are allocated dwelling growth consistent with historical building approval trends.

Then, individually for 11 regions in Queensland (the Greater Brisbane GCCSA and 10 SA4s in the remainder of Queensland), detached and attached dwelling growth in rural SA2s is subtracted from the projected dwelling growth in each region (see State and SA4 section above), to derive projected detached and attached dwellings for the urban parts of each of the 11 regions.

The total numbers of attached and detached dwellings in the urban part of each of the 11 regions are then allocated to individual SA2s on the basis of:

- assumptions about the likely location and timing of infill
- vacant lots
- recent land subdivision and dwelling construction activity
- areas of greenfield land and their expected dwelling density and development timing.

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