

# Queensland Government household projections, 2018 edition: Methodology

## Introduction

The Queensland Government produces projections of households by household type for the following geographic boundaries:

- (a) the State of Queensland
- (b) Greater Brisbane Greater Capital City Statistical Area (GCCSA) and other statistical areas level 4 (SA4s), noting that results for individual SA4s in the GCCSA are modelled in the medium series only
- (c) local government areas (LGAs).

The geographical boundaries are sourced from the 2016 Australian Statistical Geography Standard published by the Australian Bureau of Statistics<sup>1</sup>.

## Scope

Projected households refer to people living in private dwellings only. In contrast, the Queensland Government population projections are based on the estimated resident population, which includes persons living 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, but excluded from the projections of households.

## 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, 2018 edition. Furthermore, population change at the statistical areas level 2 (SA2) and LGA level is more likely to be a function of available land supply and constraints, and consequent dwelling construction, rather than pure demographic factors. The spatial and temporal distribution of land supply arises from regional planning schemes and planning policies and is therefore subject to change and review. The rate at which the available land supply is used is contingent upon economic conditions and decisions made by the business community.

Consequently, these projections of households have a greater degree of uncertainty than the population projections. Household 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 uncertainty, a range of possible outcomes rather than a single projection series provides a more realistic view of the possible scenarios for future household size and formation. As such, three projection series (low, medium, high) have been produced for households. Note that while a high, medium and low projection series are produced for dwellings at the LGA level, for household projections, only a medium series is available at LGA level.

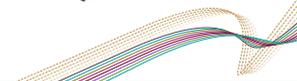
## Method

### State, Greater Brisbane GCCSA and SA4—population by living arrangement

The 2018 edition of Queensland Government household projections for the state, Greater Brisbane GCCSA and 10 remaining SA4s (outside Greater Brisbane GCCSA) were compiled using a sequential propensity household projection model<sup>2</sup>. The model uses the *Queensland Government population projections, 2018 edition* by five-year age group as an input.

<sup>1</sup> ABS 1270.0 *Australian Statistical Geography Standard (ASGS): Volumes 1 and 3, 2016*

<sup>2</sup> <http://www.demographic-research.org/volumes/vol28/24/>



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 (state, SA4s)
  - living with two parents (state only)
  - living with a single parent (state only)
- Child aged 15 years and over living with parent(s)
- Partnered with child(ren) aged under 15 years
- Partnered with child(ren) aged 15 years and over only
- Partnered with no children
- Single parent with 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.

### State, Greater Brisbane GCCSA and SA4—households by household type

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 one group household is formed from around 2.26 people, on average, who are 'living in a group household' (based on 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 household type (based on recent census data). The remaining families form single family households. Lone person households, by definition, equal the number of lone persons.

### Statistical area level 2

These are working calculations only, are not published, and are constructed as part of the process for compiling LGA-level household projections by household type.

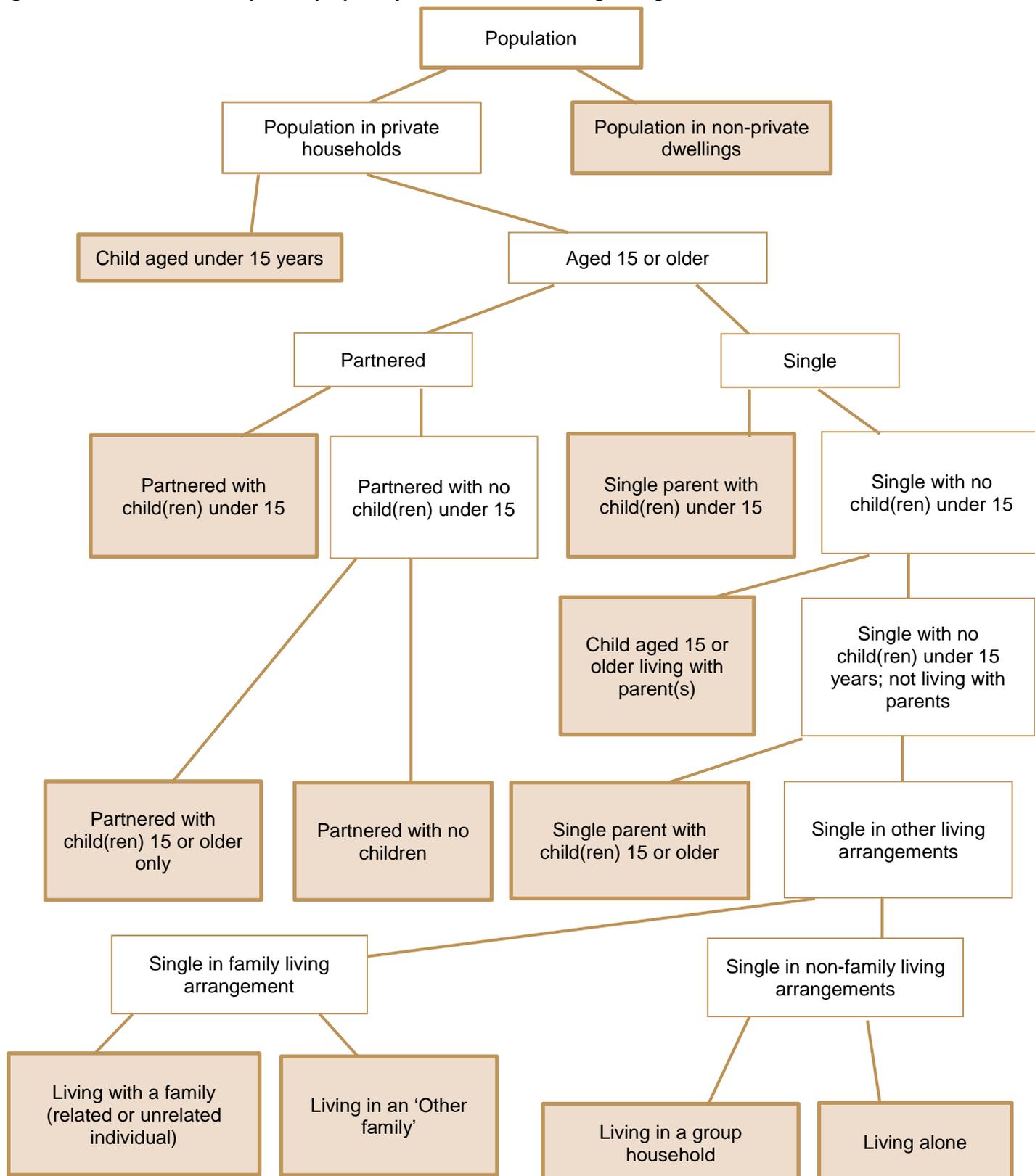
SA2-level projections of households by household type are modelled using several steps:

- Projected total households by SA2 are constructed using SA2-level dwelling projections as an input, and scaling the results to the projected total households by SA4.
- Provisional projections of households by household type are calculated for each SA2 for years 2016 to 2041, by five-year projection interval. This is done by applying the sequential propensity household projection model<sup>2</sup> to the Queensland Government population projections for each SA2 and five-year age group from 2016 to 2041. In this way, the model accounts for the impact of different SA2-level age structures on household type.
- These provisional figures are used to calculate projected growth rates for each household type, SA2 and five-year projection interval. These rates are then applied to counts of SA2-level households by household type sourced from the 2016 Census of Population and Housing, to generate projections of households by household type over the 2016 to 2041 time horizon.
- These results are scaled, using iterative proportional fitting (IPF), to projected total households by SA2 (from the first step above) and projected households by household type by SA4 (from the SA4 modelling).

### Local government area

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

**Figure 1 Outline of the sequential propensity household model living arrangement calculations**



Source: Wilson. The sequential propensity household projection model. Demographic Research 28(24): 681-712