



Department of Infrastructure and Planning

Preparing the projections

Alison Taylor

Queensland's future population 2008 edition seminar,
9th December 2008





Outline

- The process
- Components of growth
- Three series
- The assumptions

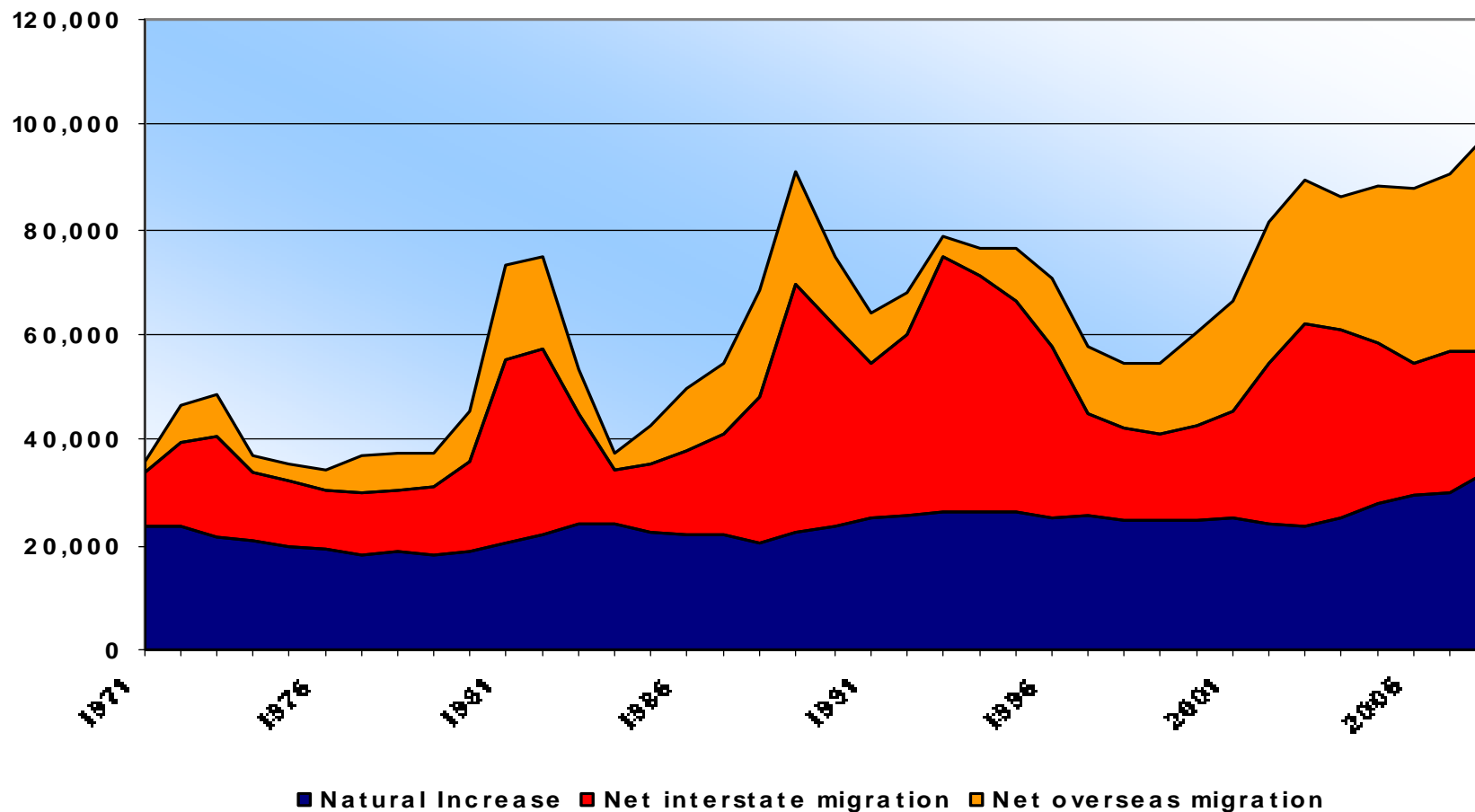


The process – from the top

- State and statistical division projections are produced (whole of government advisory committee – see www.oesr.qld.gov.au)
- Using statistical division projections as control totals, local government area projections are produced by PIFU (see www.dip.qld.gov.au)
- Using local government area projections as control totals and utilising data on available land supply, major developments and local trends, statistical local area and collection district projections are produced by PIFU on a consultancy basis
- ‘Old’ and ‘new’ LGAs are available (see appendices and website)
- Total populations, age and sex (by 5 year cohorts) are available
- No projections for Indigenous Councils



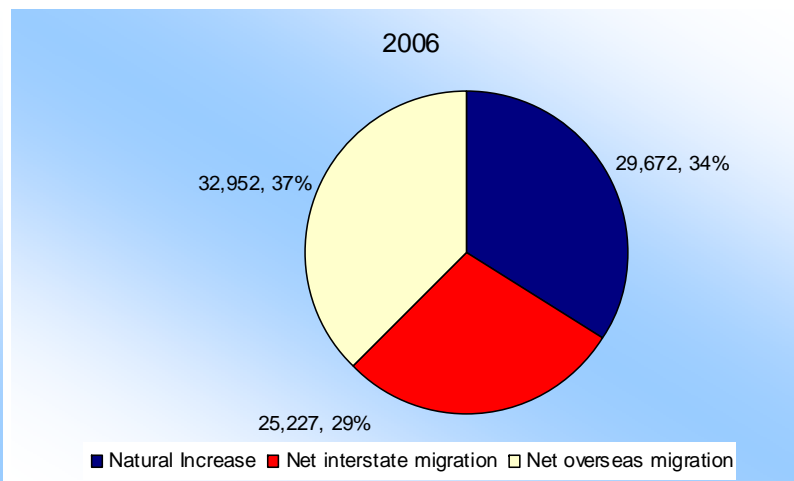
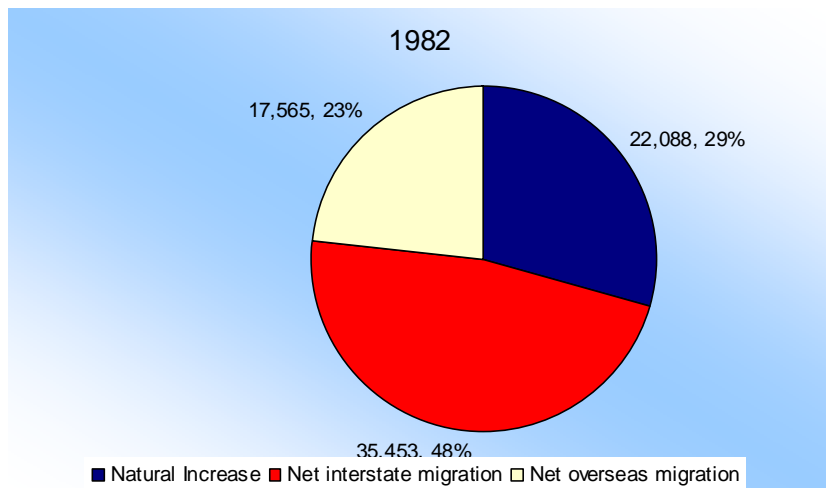
Components of growth



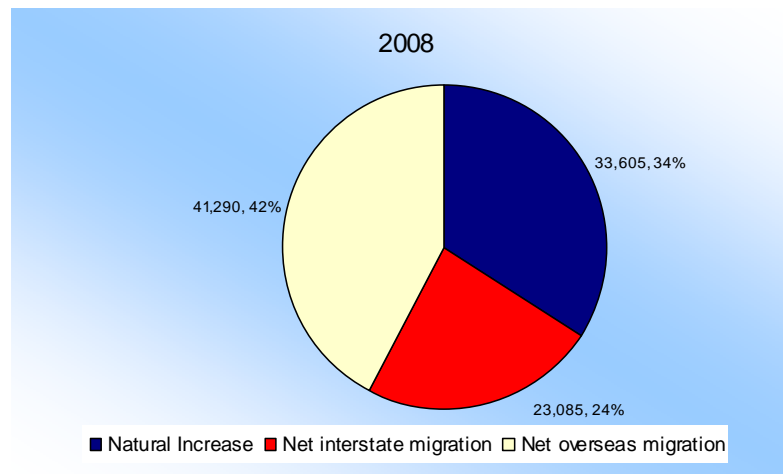


Changing contribution of each component

Beginning-----25 year period-----End



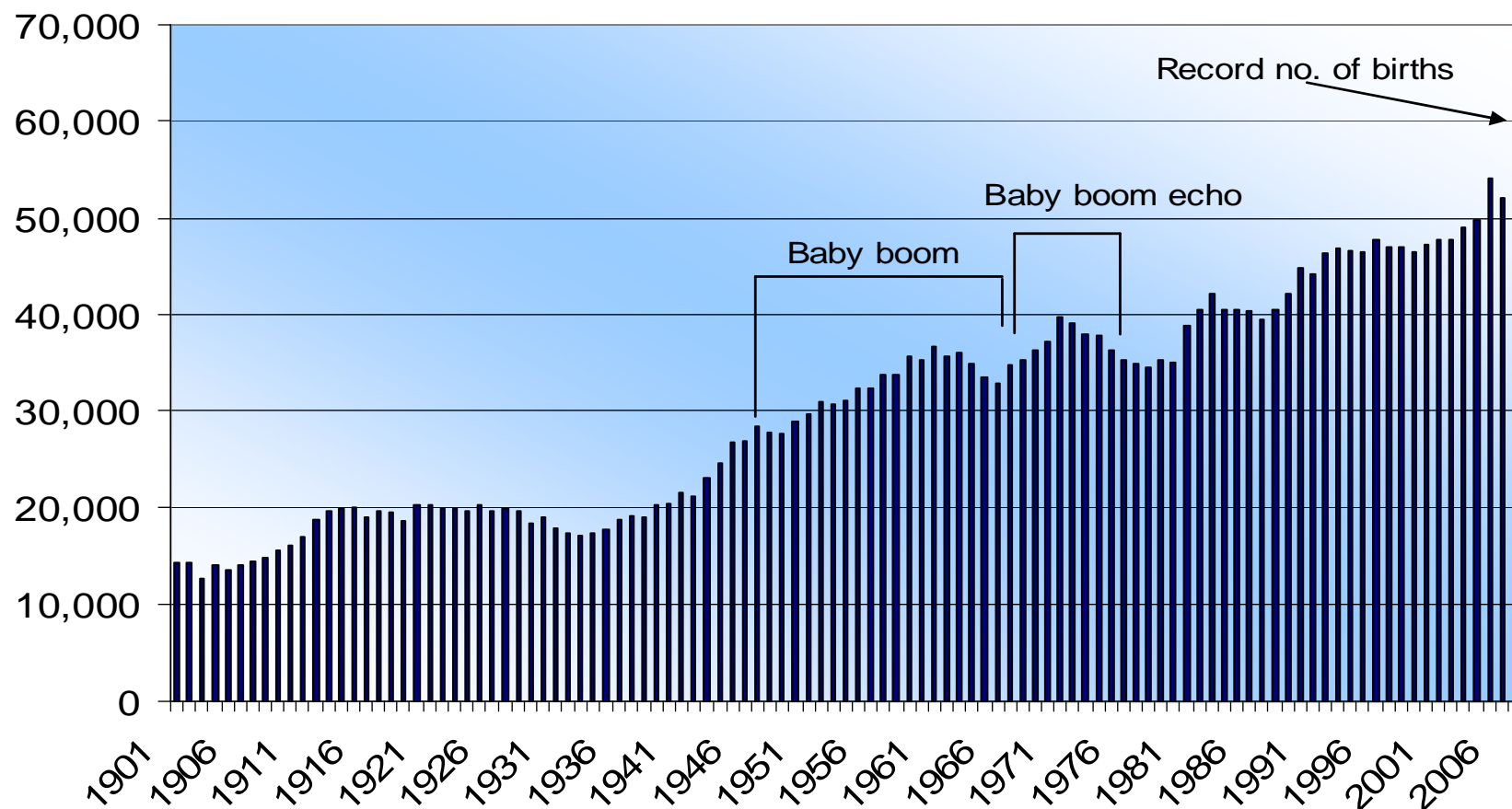
Current



Source: ABS Cat no. 3101.0, various editions

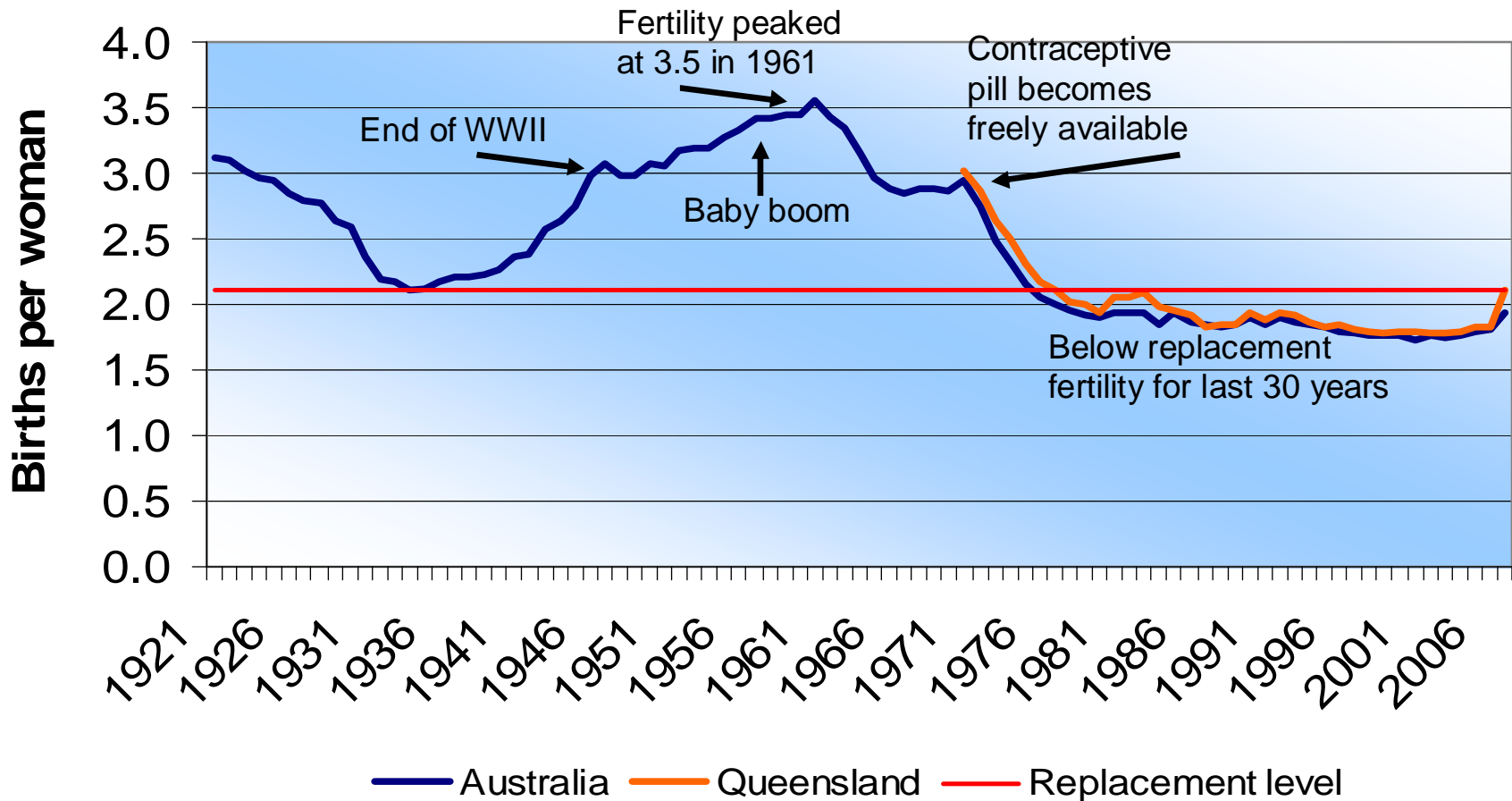


Births, Queensland, 1901-2007



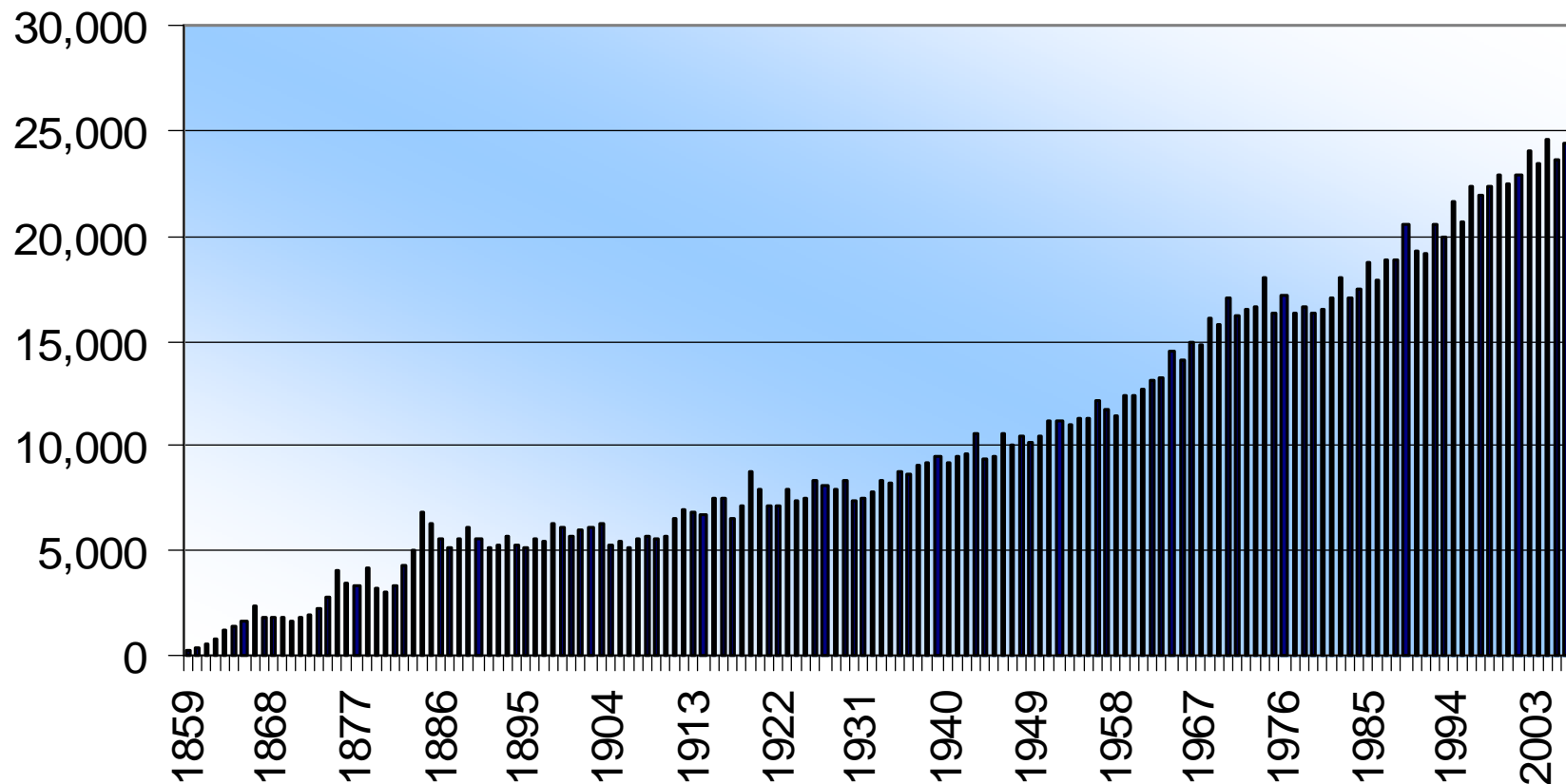


Longer term patterns of fertility





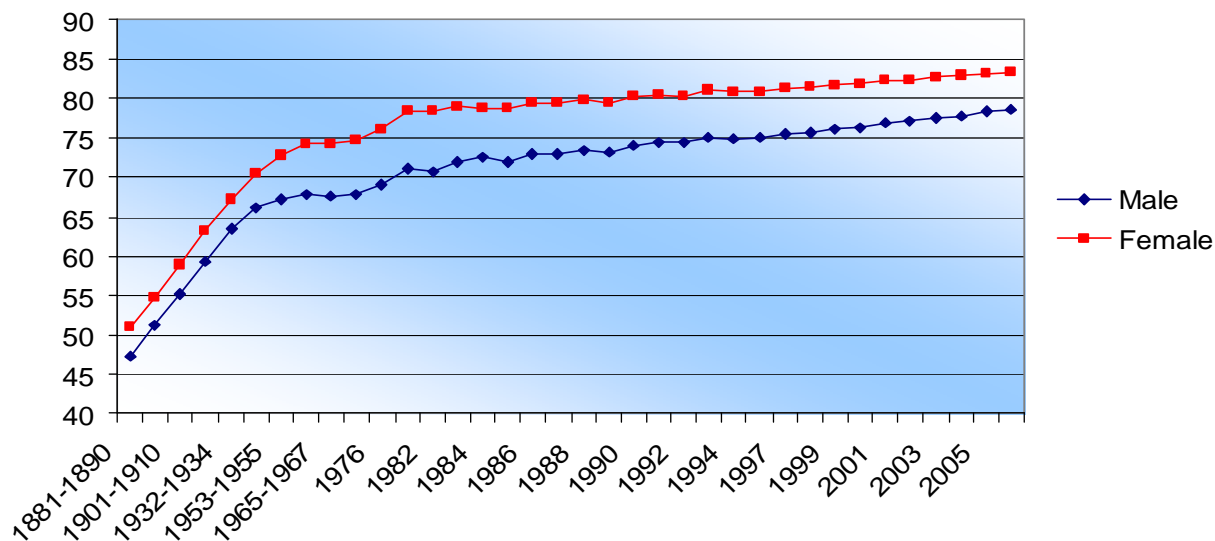
Deaths, Queensland, 1859-2007





Life expectancy at birth, Queensland

- 1881-1890 males – 47.2 females - 50.9 (Australia) difference
- 1920-1922 males – 59.2 females – 63.3 (Australia)
- 1946-1948 males – 66.1 females – 70.6 (Australia)
- 1971 males – 67.8 females – 74.7
- 1991 males – 74.4 females – 80.5
- 2001 males – 76.9 females – 82.3
- 2006 males – 78.5 females – 83.4



Source: ABS Cat no. 3105.0.65.001
Australian historical population
statistics and ABS Cat no. 3302.0
Deaths Australia, various editions

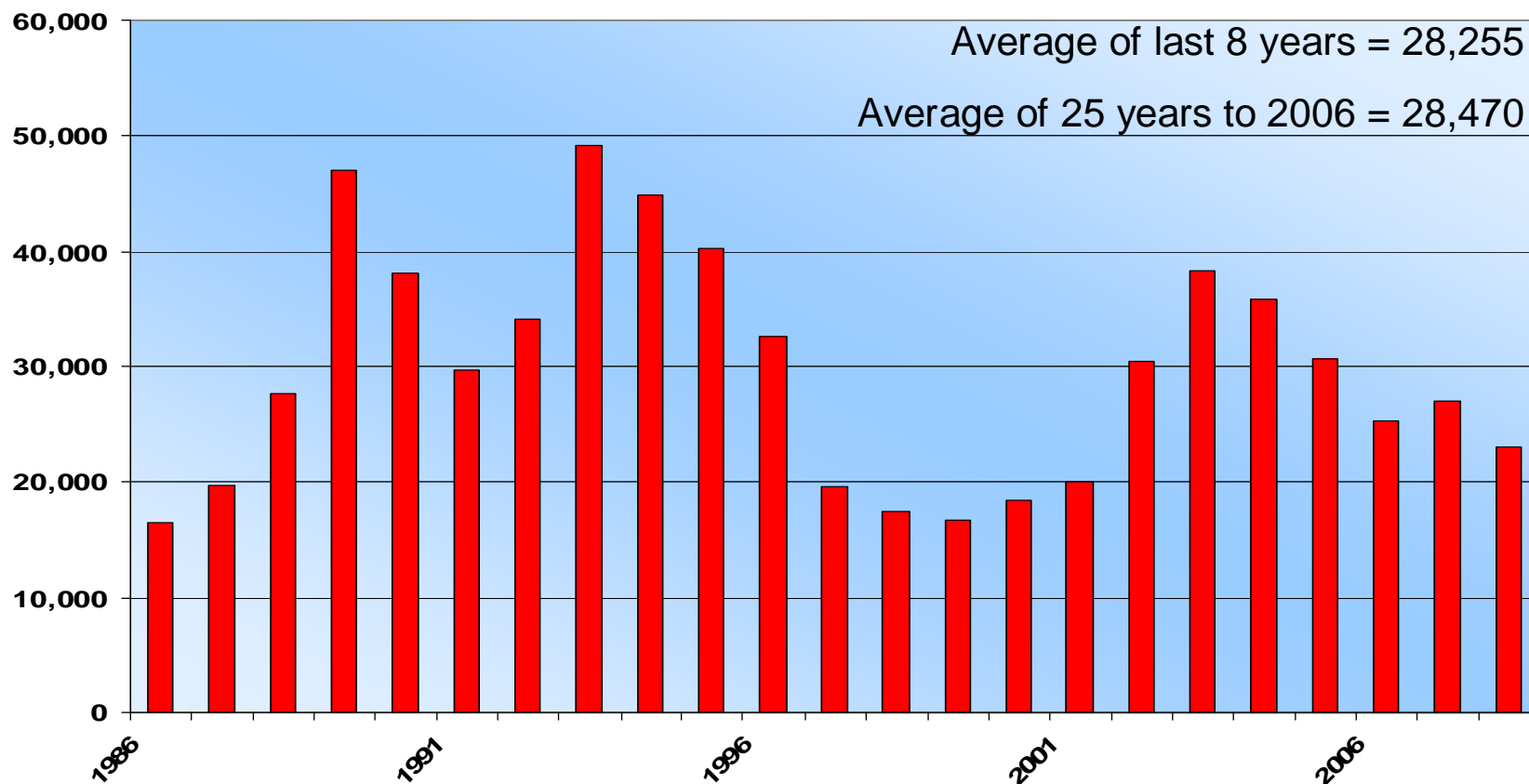


Life expectancy at selected ages

- At 25 years of age – male 54.9 years, female 59.3 years
- At 45 years of age – male 36.0 years, female 39.7 years
- At 50 years of age – male 31.4 years, female 35.2 years
- At 65 years of age – male 18.5 years, female 21.6 years



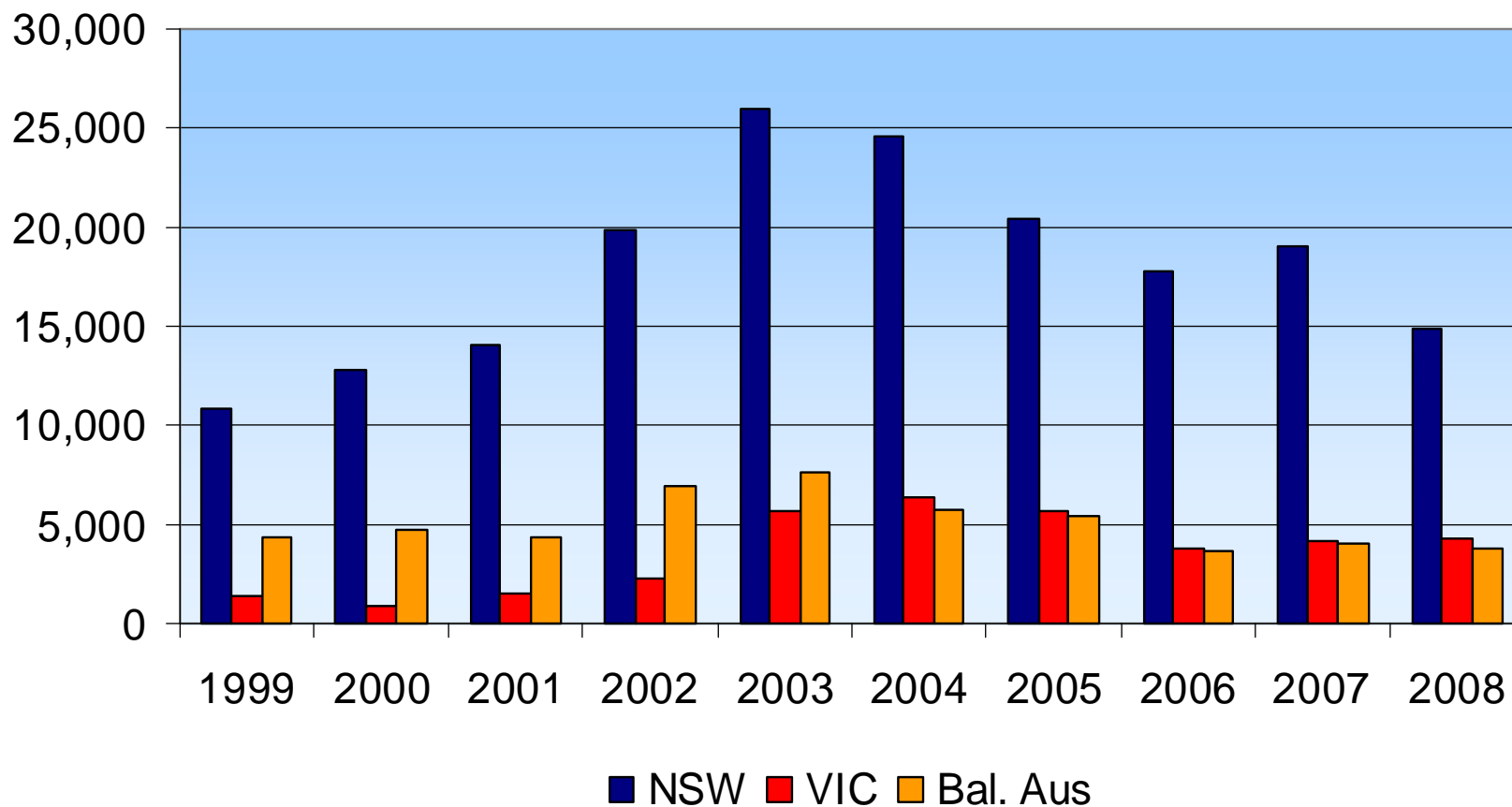
Net interstate migration, Queensland (financial years)



Source: ABS Cat no. 3101.0, various editions



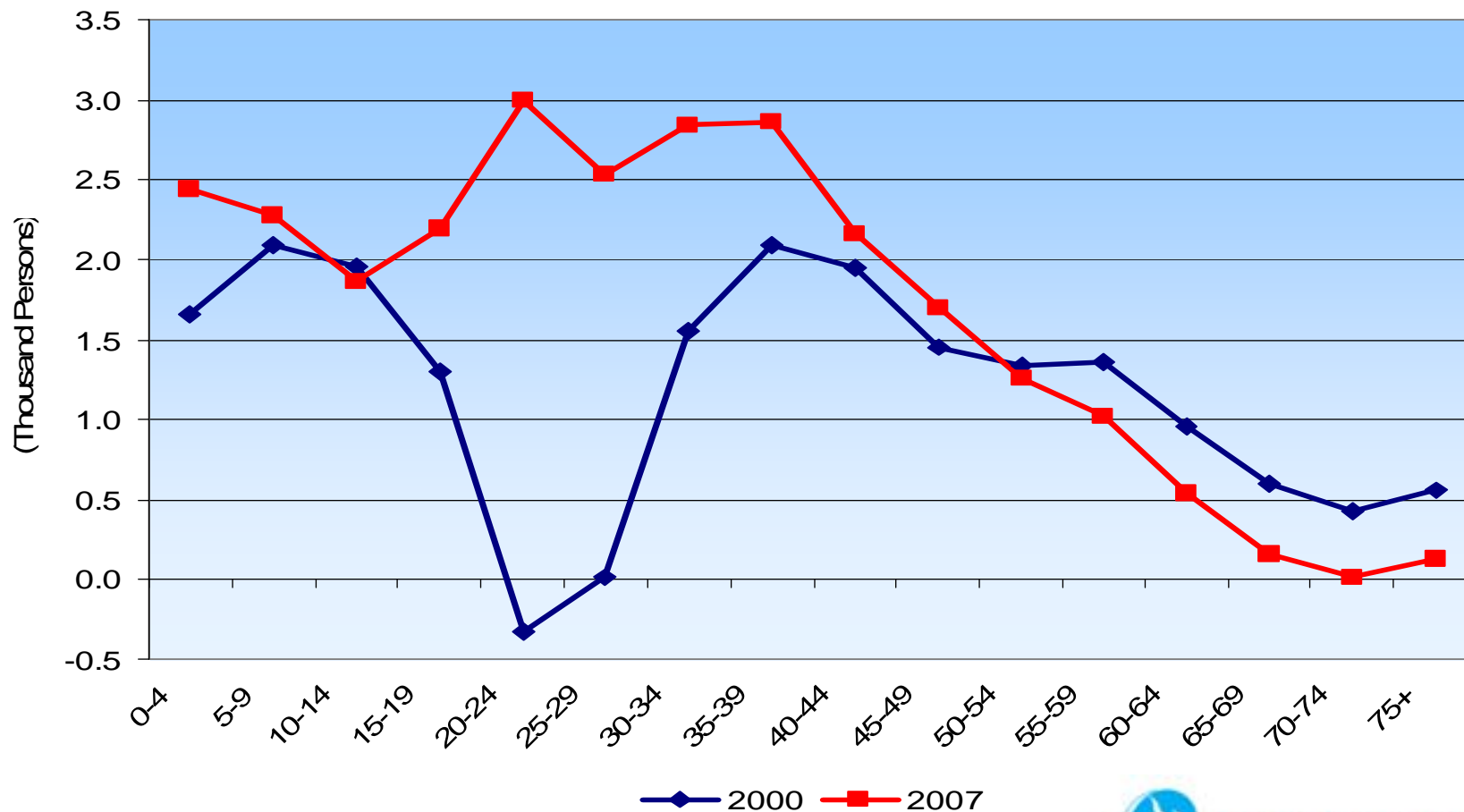
Source of net interstate migration, Queensland



Source: ABS Cat no. 3101.0, various editions



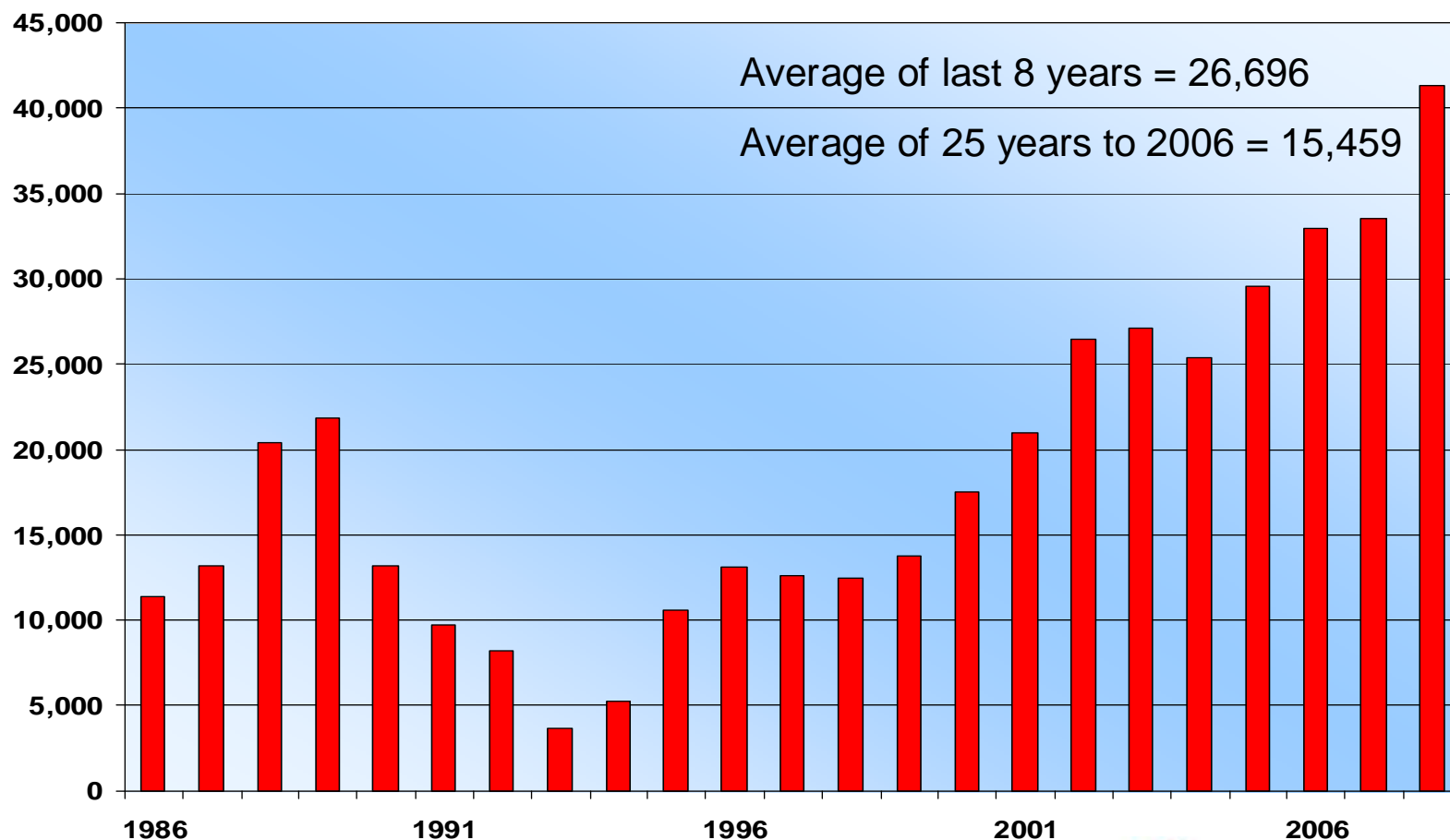
Changing age distribution of net interstate migration, Queensland



Source: ABS Cat no. 3412.0, various editions



Net overseas migration, Queensland (financial years)



Source: ABS Cat no. 3101.0, various editions



Issues with net overseas migration (NOM)

- Changed method for estimating NOM
- ABS introduced '12 out of 16' rule
 - Added people who were previously considered temporary residents
 - Delayed finalisation of estimates
- Official program – planning estimates may not reflect what actually happens
 - Movement from New Zealand is not controlled
 - Temporary entrants are 'on demand'
- Future trends
 - Continuing demand for skilled workers – can we find them?
 - If unemployment increases, the intake is likely to be capped



Three series...

- Low, medium and high series are produced
- These reflect more or less optimistic assumptions leading to a lower projected population in the low series and a higher projection in the high series
- We encourage use of a range (between the low and high outcomes), rather than a single number, to reflect variability
- Other outcomes may eventuate if any of the assumptions diverge from what has been assumed



Assumptions - fertility

- **Low** – TFR of 1.8 declining to 1.7 over 5 years then constant
- **Medium** – TFR of 1.9 declining to 1.8 over 5 years then constant
- **High** – TFR of 1.95 increasing to 2.0 over 5 years then constant
- Maintained current fertility differentials between Queensland and its regions
- Age specific fertility profiles modified for to account for older mothers but the progression to older ages slows



Assumptions – mortality

- **Low** – life expectancy at birth to reach 85.4 for males and 88.4 for females by end of projection period
- **Medium** – life expectancy at birth to reach 89.3 for males and 91.2 for females by end of projection period
- **High** – life expectancy at birth to reach 92.7 for males and 95.1 for females by end of projection period
- General assumption is that life expectancy will continue to improve
- Maintained current mortality differentials between Queensland and it's regions



Assumptions – net interstate and intrastate migration

- **Low** – net interstate migration to start at 26,000 then trend to 23,000 over five years, 20,700 over the next ten years smoothing to migration rates over the following ten years
- **Medium** – net interstate migration to start at 31,500 then trend to 32,750 over five years, 26,000 over the next ten years smoothing to migration rates over the following ten years
- **High** – net interstate migration to start at 39,500 then trend to 43,100 over five years, 31,500 over the next ten years smoothing to migration rates over the following ten years
- Migration rates reflect the propensity of age groups to move to, from or within Queensland and its statistical divisions. Changes to the rates are based on historical trends, current and proposed major developments leading to more or less optimistic migrate rate profiles



Assumptions – net overseas migration

- **Low** – to Australia 170,000 for first five years, trending to 100,000 over the next ten years then remaining constant. Queensland's share constant at 18.9%
- **Medium** – to Australia 185,000 for first five years, trending to 130,000 over the next ten years then remaining constant. Queensland's share starting at 18.9% and increasing to 22% over projection period
- **High** – to Australia 200,000 for first five years, trending to 170,000 over the next ten years then remaining constant. Queensland's share starting at 20% and increasing to 25% over projection period



The impact of small changes to the assumptions

- An increase of 0.1 children per woman would result in an extra 265,000 people in Queensland by 2056 over the current medium series. (All the extra people would be aged less than 50 years)
- An increase of one year in life expectancy at birth by 2056 would increase the population by 63,000 people (all aged 65 years or more)
- An increase of 1% in Queensland's share of Australia's net overseas migration would mean an extra 47,000 people by 2056
- An increase of 5% in the propensity of people to migrate from other parts of Australia would result in an additional 223,000 people by 2056



Comparing the medium assumptions 2006 and 2008 editions

- Re-based from 2001 to 2006 population
- Incorporated preliminary estimates for 2007
- Increased longer term fertility rates from 1.7 to 1.8 reflecting recent increases
- No change to mortality assumptions
- Increased net overseas migration gain to Australia to 185,000 for 5 years declining to 130,000 (compared with a constant net gain of 110,000) – again reflecting recent increases
- Little change to net interstate migration assumptions



Comparing the Queensland government medium and ABS series B assumptions

- ABS fertility rate assumption is higher
- Queensland government life expectancy assumption is higher
- Queensland government net interstate migration assumption is initially higher but after 2022 is lower
- ABS net overseas migration assumption is higher

- By 2031, ABS projection for Queensland is 245,200 higher than the Queensland government projection
- By 2056, ABS projection for Queensland is 762,700 higher than the Queensland government projection



So this job is really easy, right?

- The numbers keep changing
- There are problems with the numbers – can we believe them?
- People keep changing their behaviour – eg. Increasing fertility
- People won't change their behaviour – eg. Increasing obesity
- New discoveries are made/technological improvements
- Economic crises happen – what is the fallout?
- Major weather events occur eg. Cyclones – climate change?



You can't please everybody...

- Some think our projections are too high (those concerned with environmental consequences, impacts on *their* quality of life or assets)
- Some think our projections are too low (those concerned with stimulating increased economic activity, impacts on *their* bottom line)
- Some say we simply extrapolate past trends and do not take any account of the future (those who are dissatisfied or haven't read the description of our methodology or associated research papers)



Our objective...

... is to provide a set of projections using the best models, incorporating the latest and most accurate information and research, while remaining objective as to the nature, scale and impact of future influences



To achieve this...

- Updates twice every five years to take account of new data, the latest trends and research
- Maintenance of extensive databases
- Close scrutiny of results, comparison with actuals, analysis of variation
- Continuous improvement of models to take account of external data eg. land supply, development activity, industry planning
- Consultation program with every local council, discussion with local experts
- Extensive program of presenting results and seeking feedback



Department of **Infrastructure and Planning**
Planning Information and Forecasting Unit
PO Box 15009 City East Qld 4002 Australia
tel +61 7 3237 1115
fax +61 7 3235 4071
pifu@dip.qld.gov.au

www.dip.qld.gov.au