NY projections using Cohort Component Method

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Characteristics

- Cohort Component Method
- By sex and 5-yr age categories
  - 0-4, …, 85+
- County level
- Base 2005, projected 2010, 2015, …, 2035
- Parameters constant
  - “What if the future looks like the recent past”
Model environment

- Written in SAS
- Input parameters in Excel workbook
  - Allows for varying parameters and scenario definitions
- Output to Excel
- Default output accessible online

Cohort Component Method

<table>
<thead>
<tr>
<th>Cohort size at t1</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ births between t1 and t2 (only youngest cohort)</td>
</tr>
<tr>
<td>- deaths between t1 and t2</td>
</tr>
<tr>
<td>+ in-migration between t1 and t2</td>
</tr>
<tr>
<td>- out-migration between t1 and t2</td>
</tr>
<tr>
<td>= Cohort size at t2</td>
</tr>
</tbody>
</table>
Births

- Based on Age Specific Fertility Rates
- Assumptions calculated as:
  \[ \text{Rate}_{\text{agegroup}} = \frac{\text{Births}_{\text{agegroup}} \text{ from Oct 1998 – Oct 2001}}{3} \text{ divided by } \#\text{female}_{\text{agegroup}} \]
- Birth data from NY Department of Health
- Age group size from Census 2000

Deaths

- Based on calculated lifetable
- Death rates calculated as:
  \[ \text{Rate}_{\text{agegroup}} = \frac{\text{Deaths}_{\text{agegroup}} \text{ from Oct 1998 – Oct 2001}}{3} \text{ divided by } \#\text{population}_{\text{agegroup}} \]
- Death data from NY Department of Health
- Age group size from Census 2000

Cornell Program on Applied Demographics
On the web: http://pad.human.cornell.edu
Email: PADinfo@cornell.edu
Migration

• Multi step process
  – Calculate age/sex distribution of in- and out-migration
    • Based on 'Where did you live 5 years ago'
  – Calculated total Net-migration independently
  – Calculate in-migration and out-migration counts by sex and cohort

Base population

• Project Census 2000 population to 2005 and rake to 2005 total population estimates
  – 2005 Census Bureau Population estimates by sex and age gave some unexplainable results
Special Populations

- Temporary residents can cause problems
  - For example:
    - Student population aging in college towns
    - Same for prisons, military installations, etc.
- Possible solution:
  - Define Special Population by age/sex
  - Remove them from demographic processes
  - Add them back in for total population counts
  - Drawback: Need for adjusted rates

Special Populations

- New York solution:
  - Only look at change in the size of Special Populations
  - Only correct migration counts for those changes
  - Also correct assumed migration for changes in the past
  - Drawback: significant change in special population could distort projected birth/deaths
Output

• Detailed output to Excel
  – includes all projected components of change
• Summarized data available online
  – Includes tables, charts and population pyramids
  – Assumptions, methodology and detailed output available for download

Future ideas

• Projections by race
• Annual projections by single year of age
• Derive migration rates from the ACS
• Look at possible/probable trends in demographic processes
• Look at spatial correlations
• Look at connections with Economic projections