

Expanding the Greater London Authority Population Projection Model beyond London

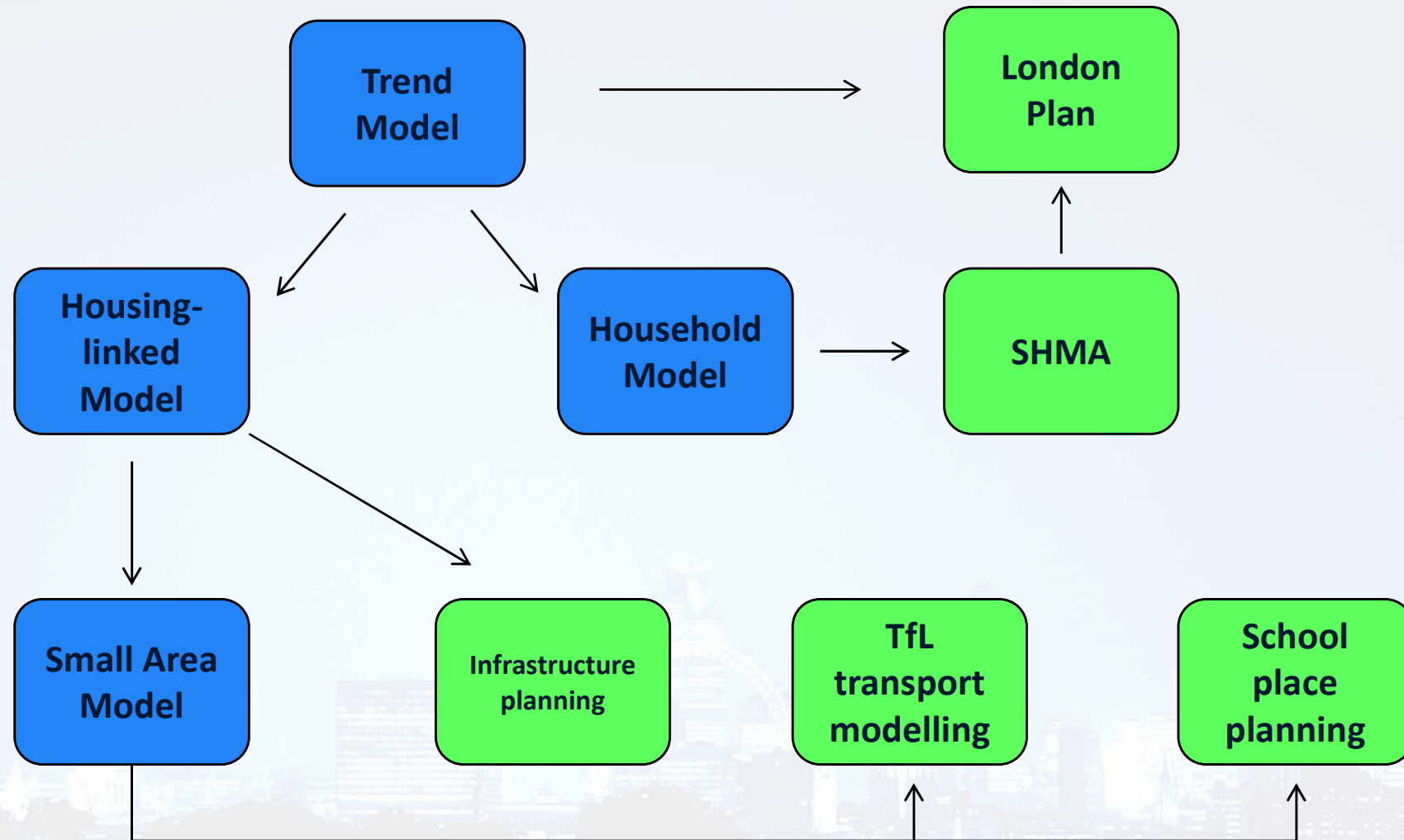
Wil Tonkiss

Greater London Authority

GLA Population Modelling

1. Overview of GLA modelling & its uses
2. Rationale for developing a new modelling approach
3. Legacy model
4. Expanded Model
 - a) Overview of components
 - b) Data sources
5. Visualisation and Quality Assurance
6. Next Steps

GLA modelling overview



Rationale

- Requirement for extension of models beyond the London boundary
 - GLA has duty to inform and co-operate with neighbours
- Additional demands come from:
 - TfL for modelling commuter flows
 - London Infrastructure Plan – requires consistent population scenarios across the wider region to 2050

Legacy GLA Trend model

- In use 2010 – 2015
- Cohort component trend-based model
- 36 area model:
 - 33 London Boroughs
 - South East region
 - East Region
 - All other UK

Model requirements

- Provide consistent projections for local authorities across the wider south east region
- To be able to produce projections methodologically consistent with ONS/DCLG
 - Facilitate comparison and use in official planning work
- Allow users to explore range of scenarios
 - Fertility, mortality, migration
 - Household formation
- Include tools for visualisation/QA

Expanded Trend Model

329 area model:

- 33 London Boroughs
- 293 LA's in England
- Wales, Scotland, Northern Ireland
- Standard cohort component methodology

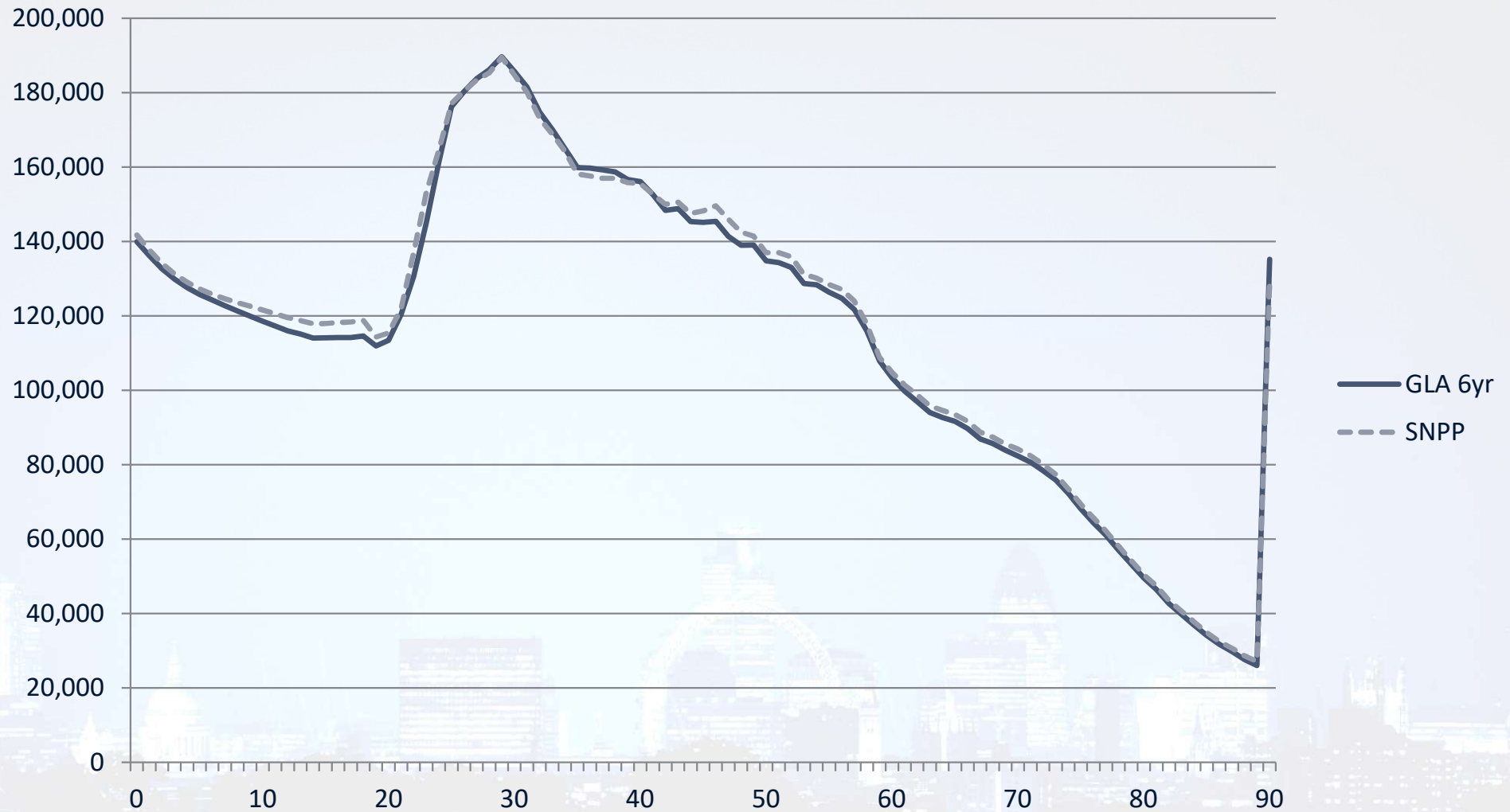
Outputs

- Projected population
- Projected households (DCLG household model incorporated)
- Components of change

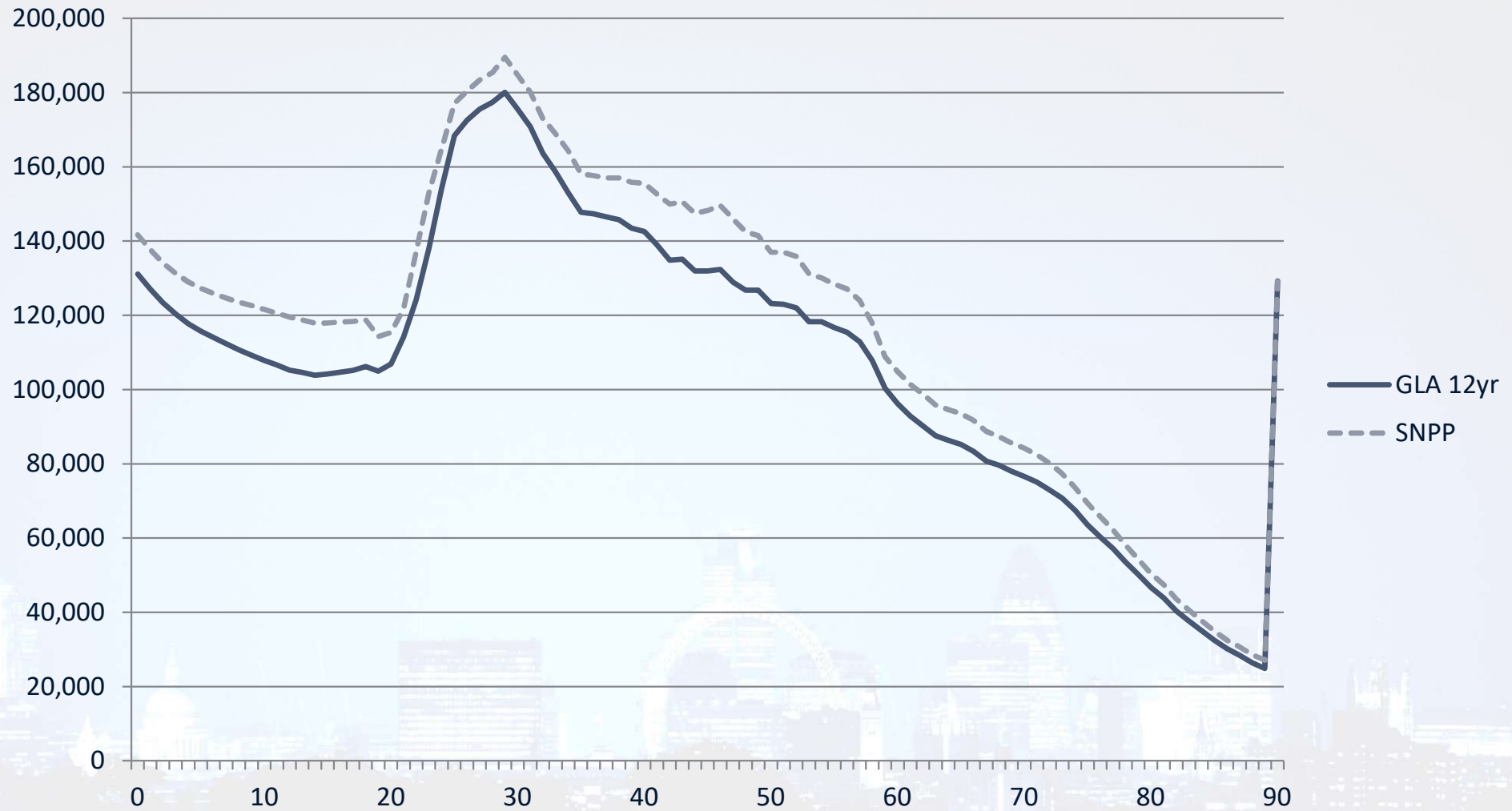
Data sources

- SNPP for age-specific fertility structure
- NPP for ASFR and ASMR trend
- SNPP & NPP for national/regional constraints
- ONS Internal migration backseries
- Mid-year estimates components of change

Results – London 2037



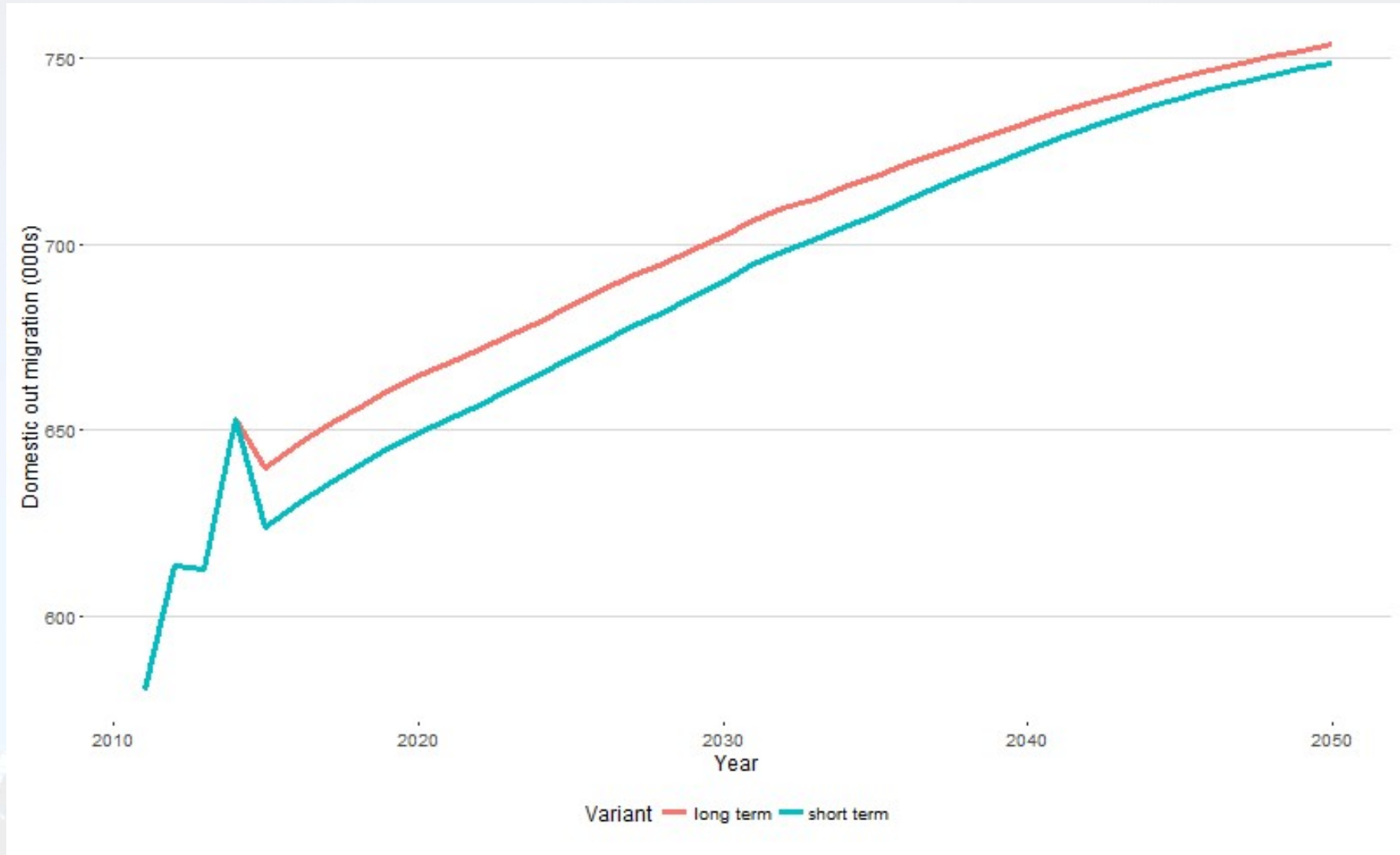
Results – London 2037



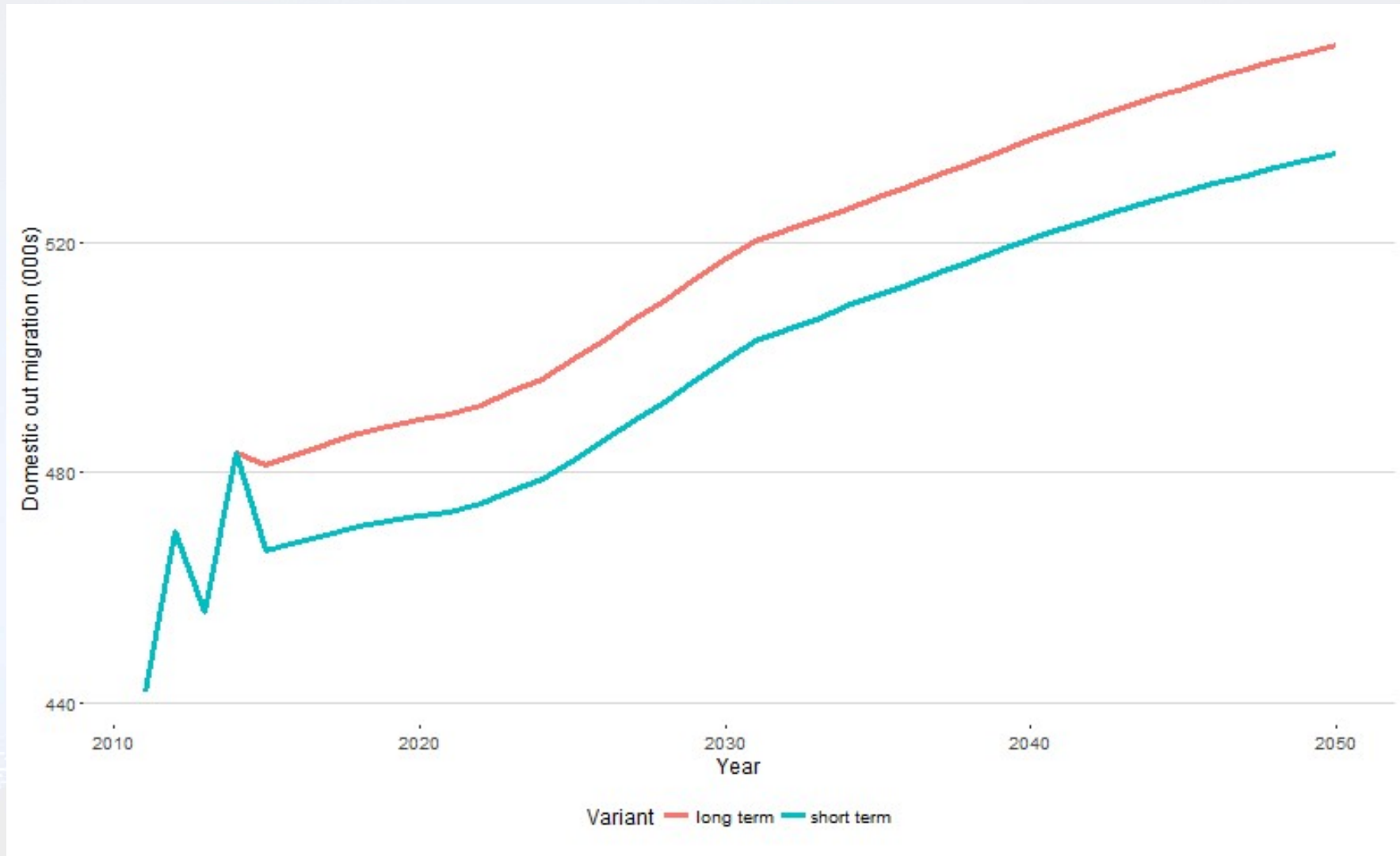
Impact of out migration

- London's preferred projection uses a longer migration backseries (12 years currently)
- Long-term projection predicts increased domestic out migration and consequently a lower population for London (when compared to short-term scenario)
- Speculation that higher domestic out-migration from London would mean higher populations in the East and South East

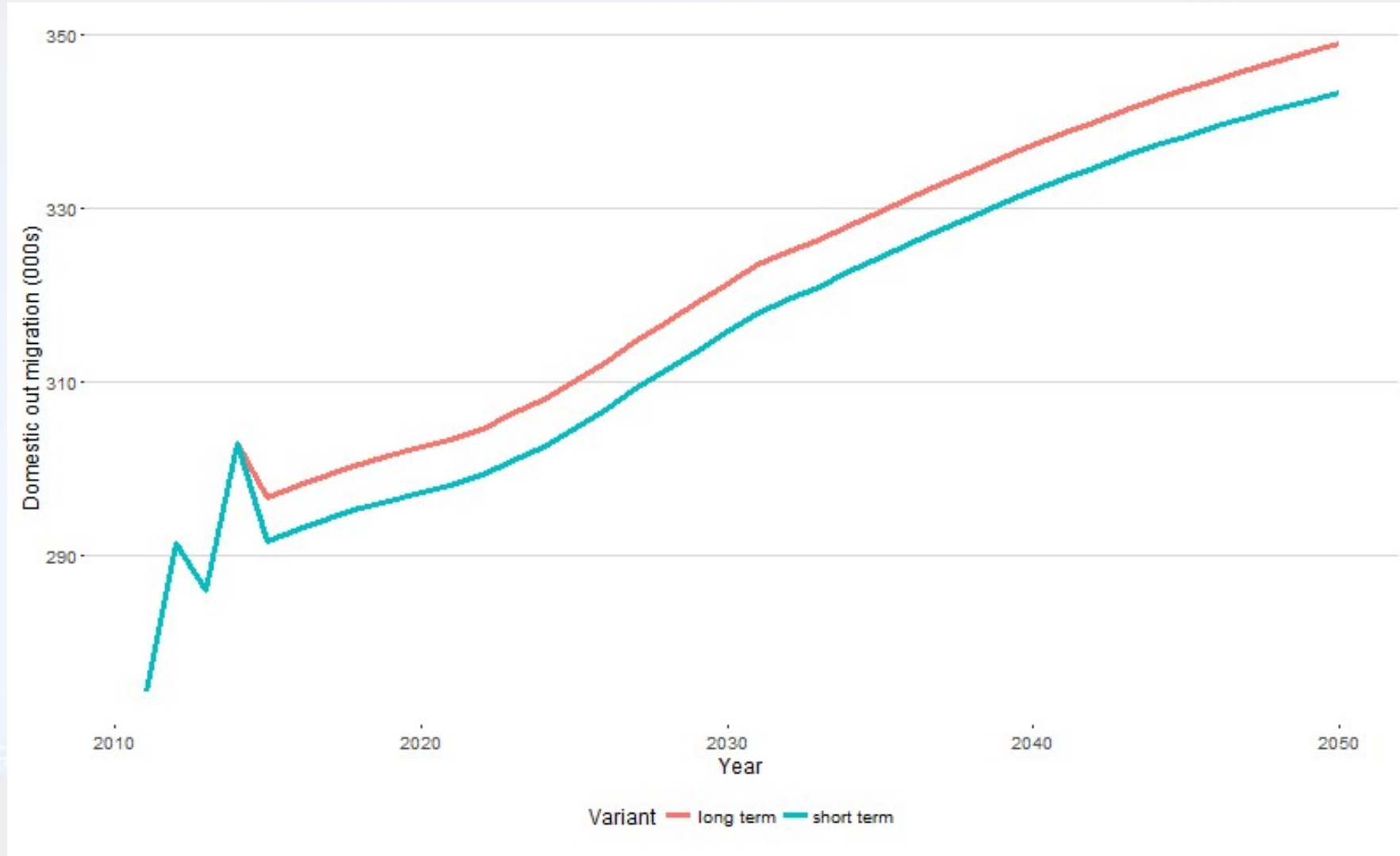
London domestic out-migration



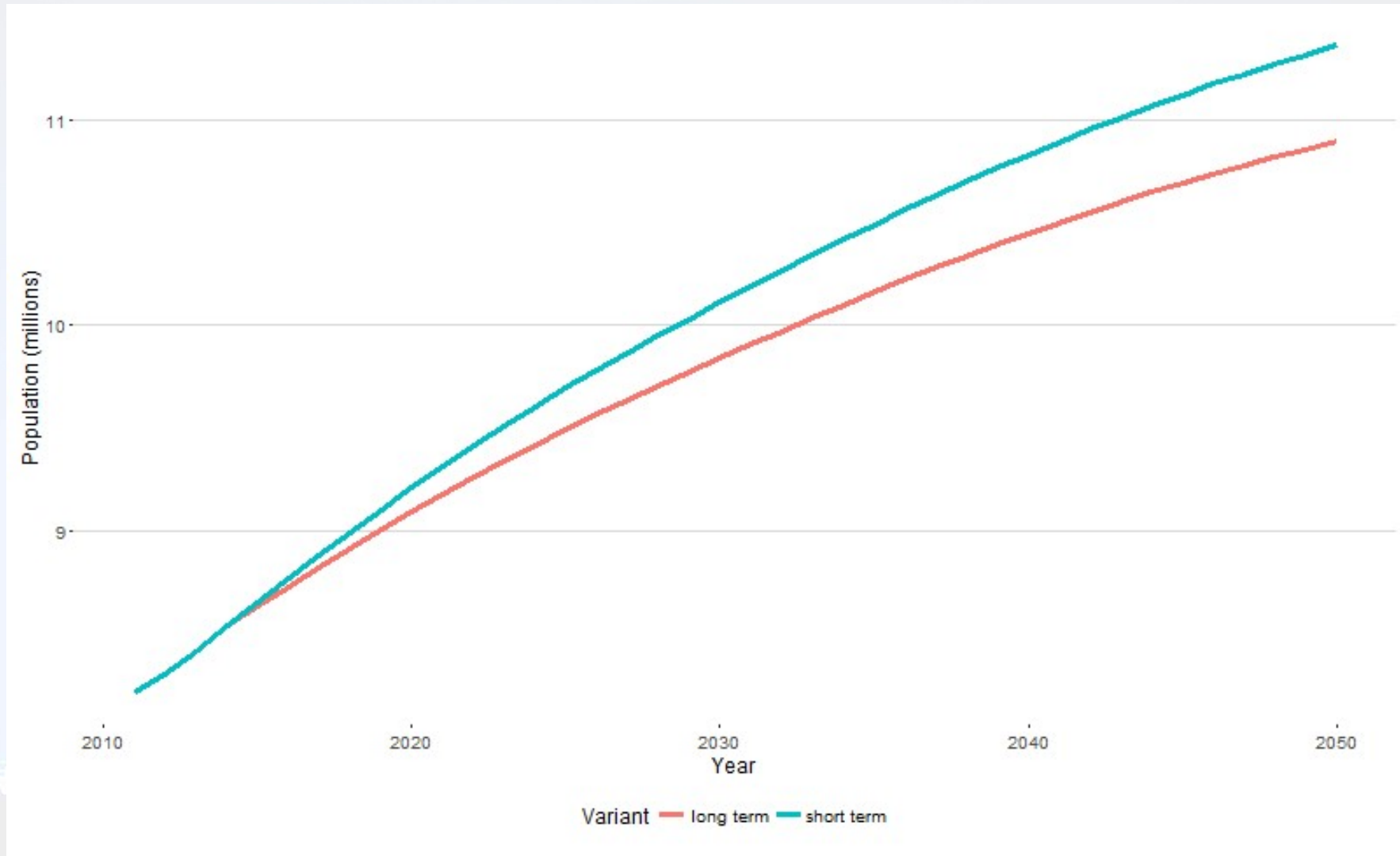
Impact of London's out migration – South East



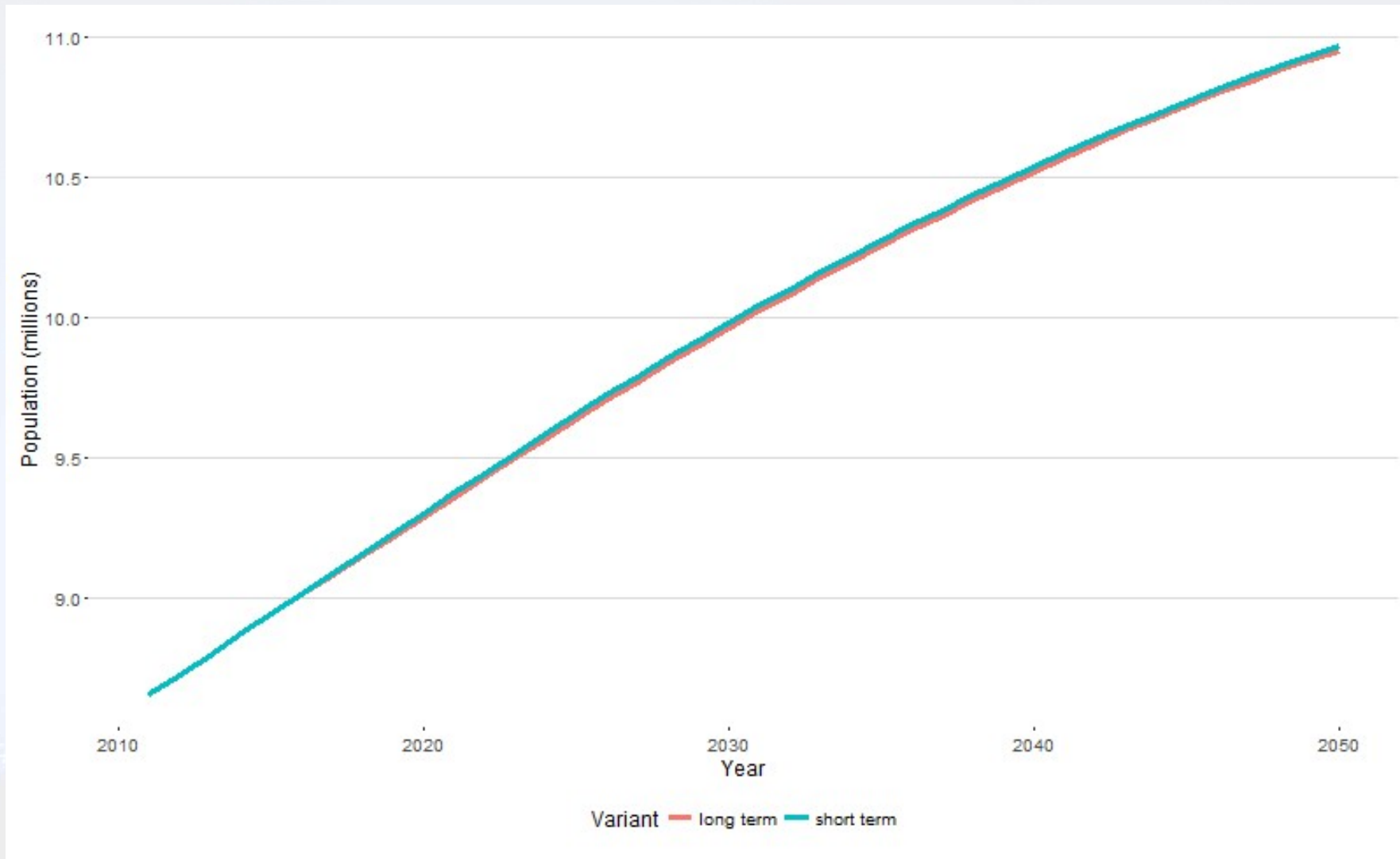
Impact of London's out migration – East of England



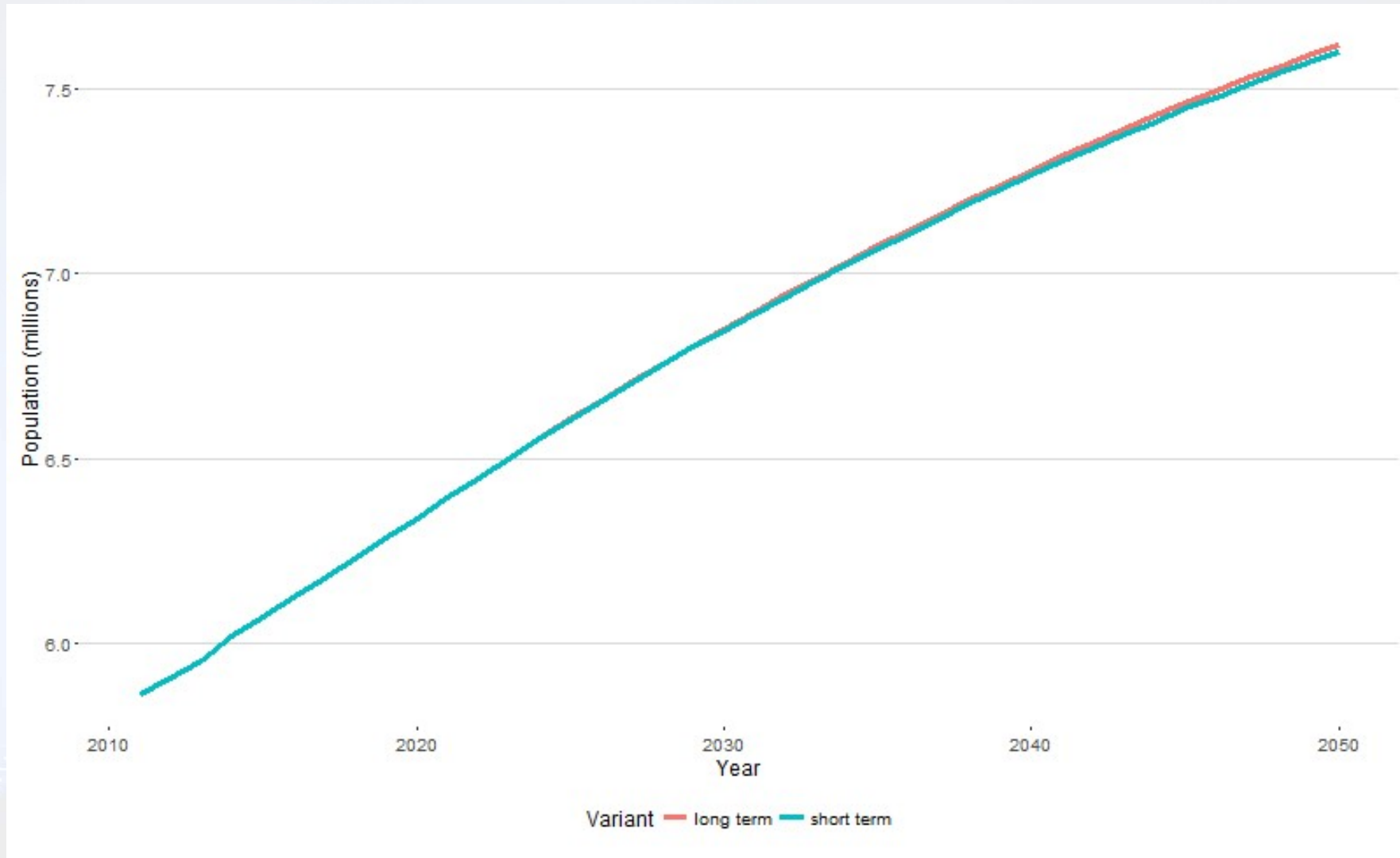
Total Population - London



Total Population – South East



Total Population – East of England



Next steps

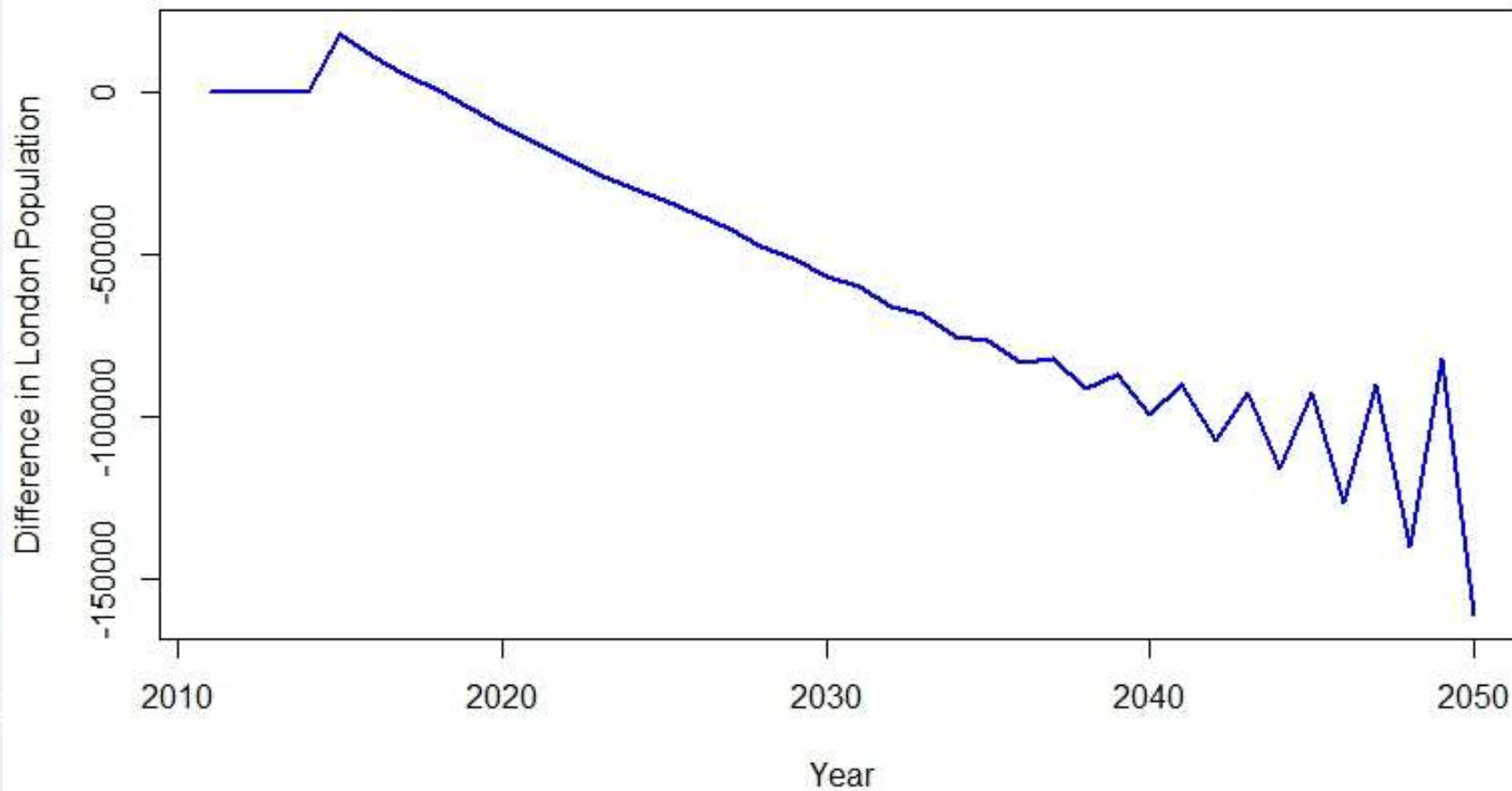
- Full integration of the Trend model with other GLA models
 - Small Area (ward/MSOA/LSOA)
 - Housing-linked models
 - Household model
- Review by Centre for Population Change, University of Southampton
- GLA Employment projection-linked high/low variants

Data Visualisation in Quality Assurance

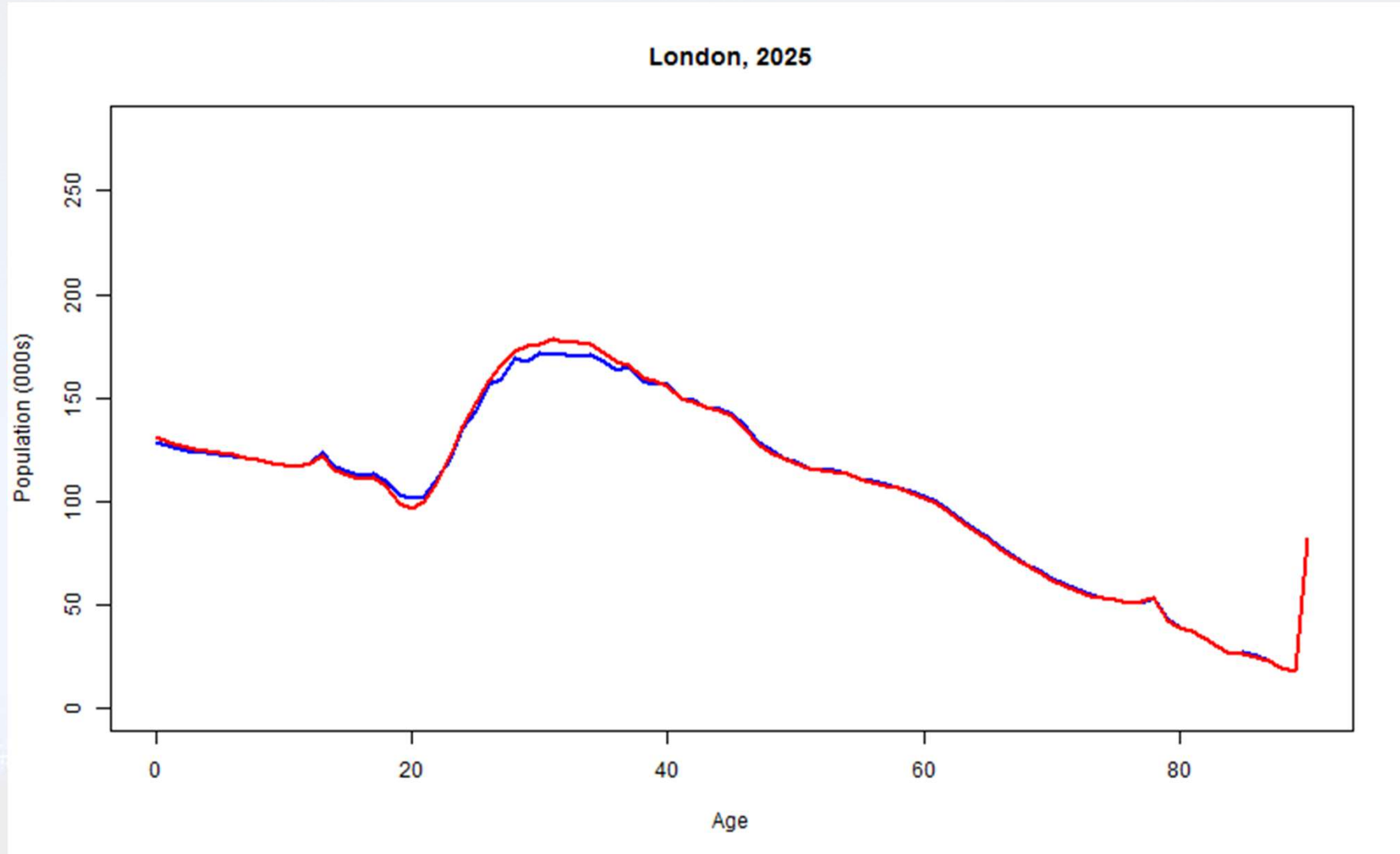


Visualisation & QA

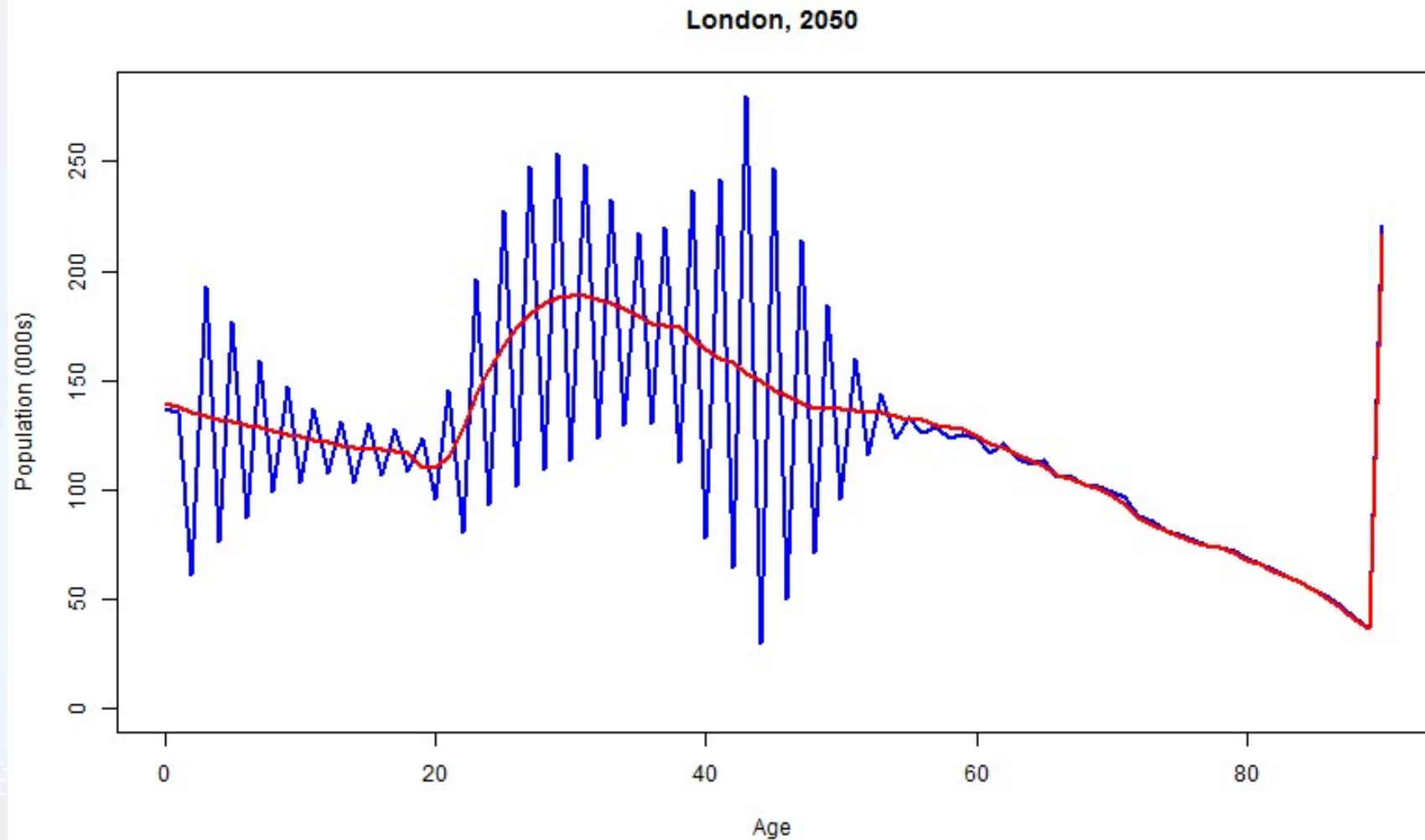
Comparison of 2 code implementations



Visualisation & QA

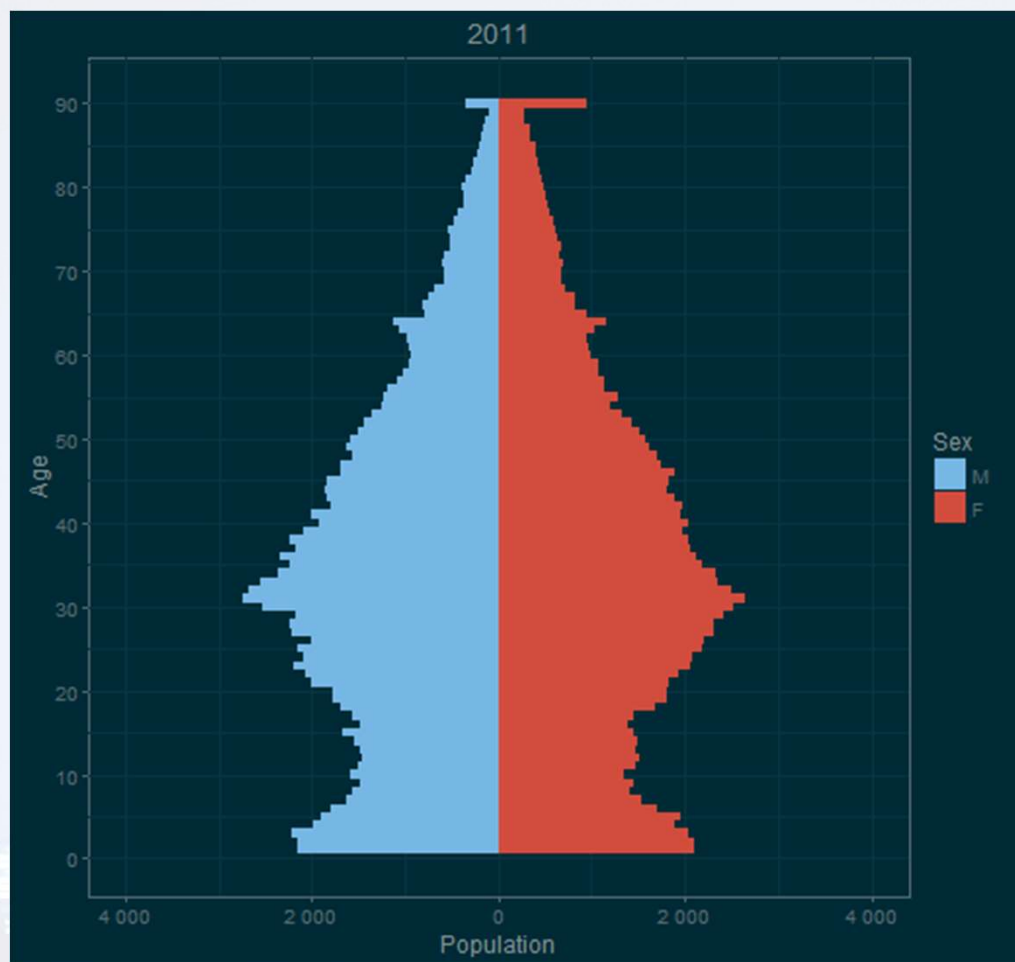


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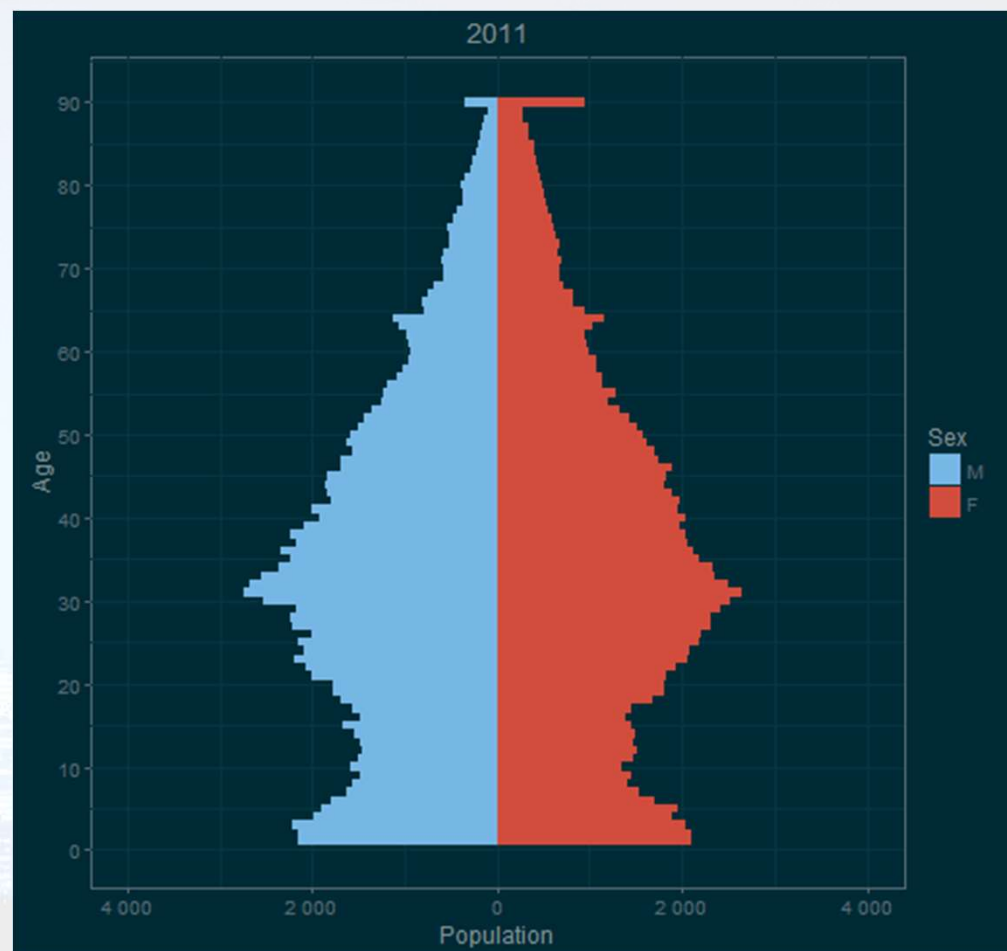


Population Change in Greenwich

Trend projection



Housing-linked projection



QA Tool

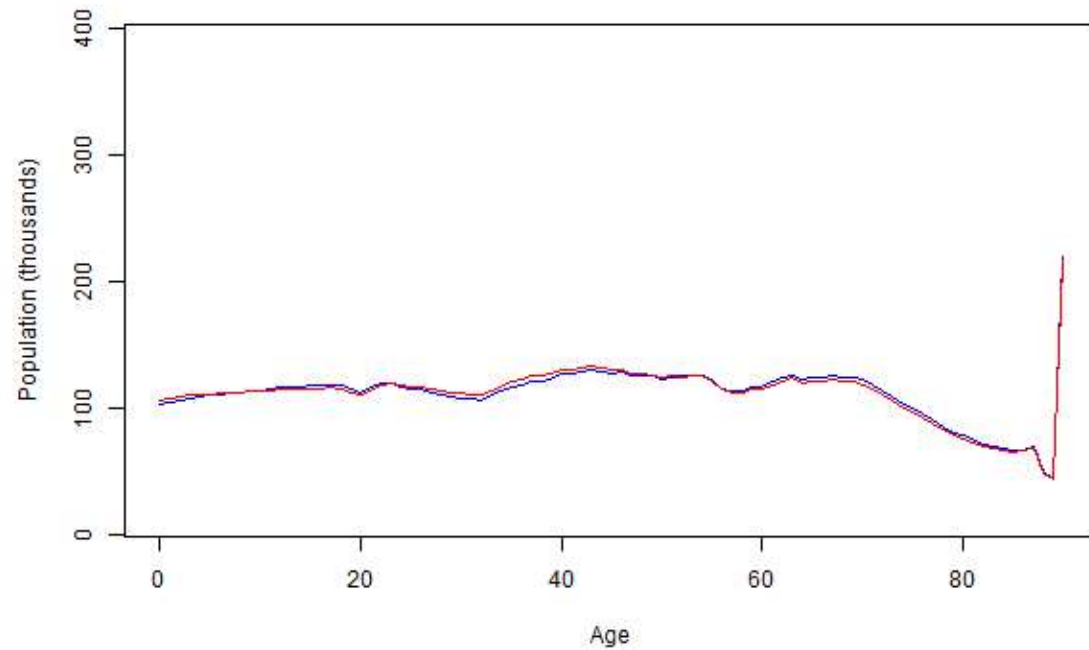
Component

- Population
- Births
- Mothers by sya
- Deaths
- Domestic In
- Domestic Out
- Domesric Net
- International In
- International Out
- International Net
- Total In
- Total Out
- Total Net

Sex

- All people
- Female
- Male

Upload Time Age



Year



Download Data

Download Plot

Projection QA

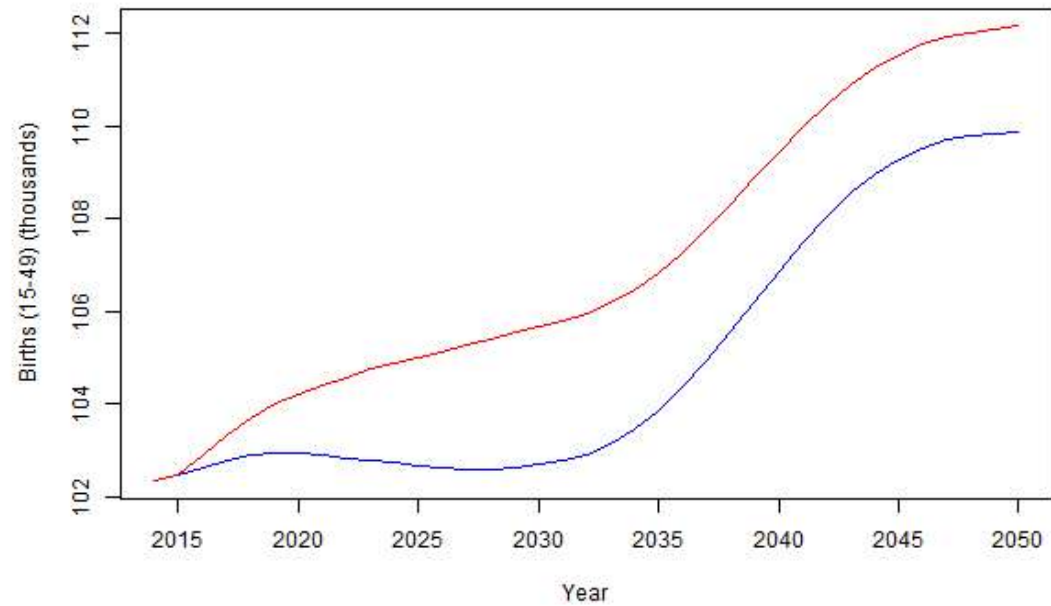
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Start Y axis at zero

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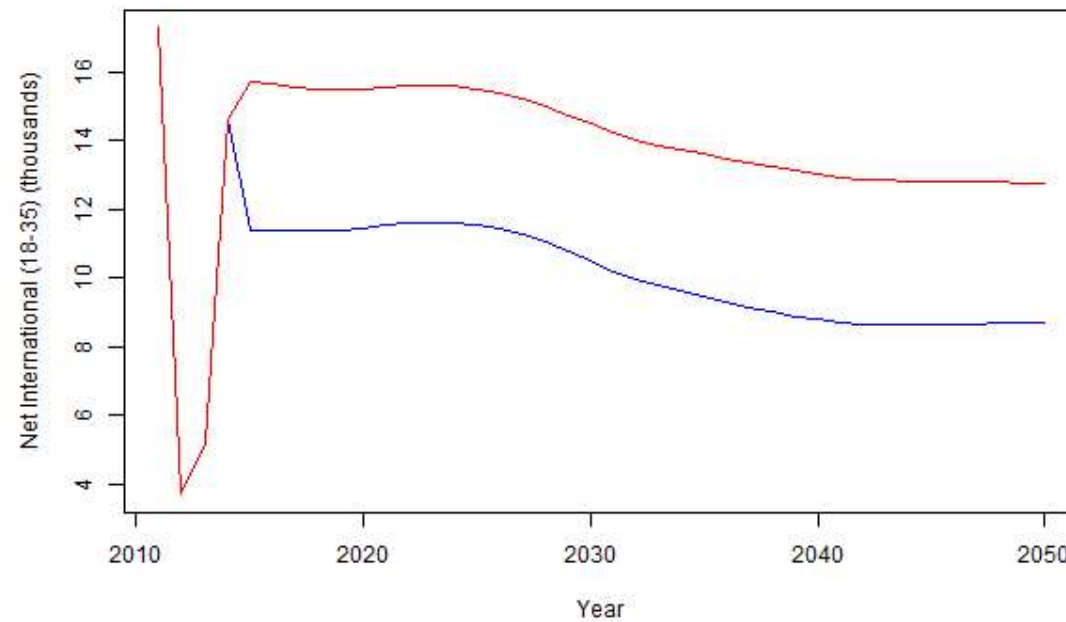
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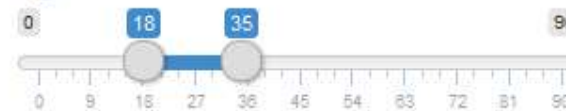
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Projection QA

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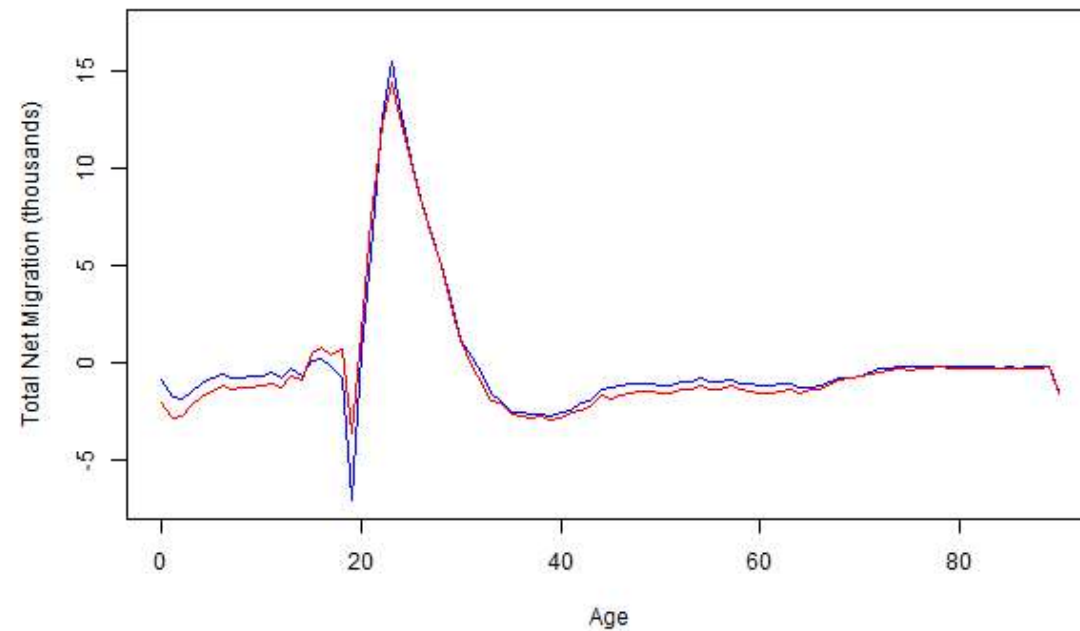
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Year



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GLA Demography

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Outputs

- Single year of age by sex for all projection years:
 - Population
 - Births & deaths
 - Domestic migration (in and out)
 - International migration (in and out)
- Additional outputs
 - ASFR, TFR, ASMR, Life Expectancy
 - Regional aggregations
 - Household projections (DCLG methodology)