CaDDANZ
Capturing the Diversity Dividend of Aotearoa/New Zealand

Sub-national ethnic population projections for small ethnic groups

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CADDANZ

- In the CADDANZ project, we are not only concerned with looking at New Zealand's past and current experience of diversity, but we are also looking ahead to the future
- In terms of future focus, we are doing this quantitatively through two methods:
  - Subnational ethnic population projections
  - Spatial microsimulation modelling
- Today I want to briefly outline our work on the first of these two methods

The cohort component projection model

The population usually resident in area *i* at the **end** of year *t*

= The population usually resident in area *i* at the **beginning** of year *t*

+ **births to mothers** residing in area *i* during year *t*
– **deaths of residents** of area *i* during year *t*
+ **inward migration from other regions** into region *i* during year *t*
+ **inward migration from overseas** into region *i* during year *t*
– **outward migration of residents** from area *i* **to other regions** during year *t*
– **outward migration of residents** from area *i* **to overseas** during year *t*

Note: All migration is conventionally combined into one **net** migration **number** (by region, age and sex)

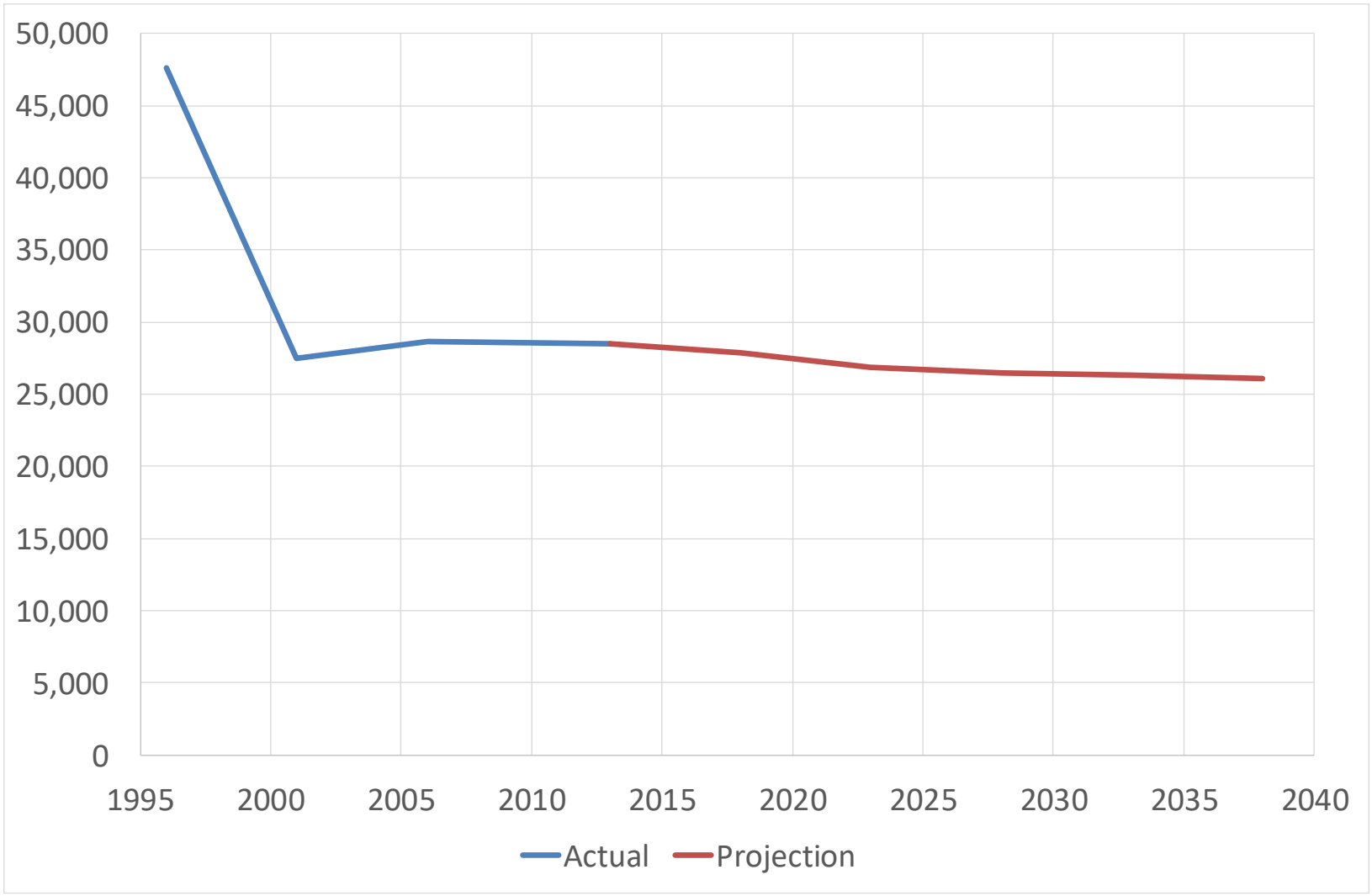
Ethnic projections in New Zealand

- The official ethnic population projections for New Zealand have been updated in 2017
- These official projections are based on a Bayesian stochastic cohort component methodology
- They include projections for the 'Level 1' ethnic groups (New Zealand European or Other, Maori, Pacific, Asian, and Middle Eastern/Latin American/African), as well as for the first time a limited number of the larger 'Level 2' ethnicities (Chinese, Indian, Samoan)

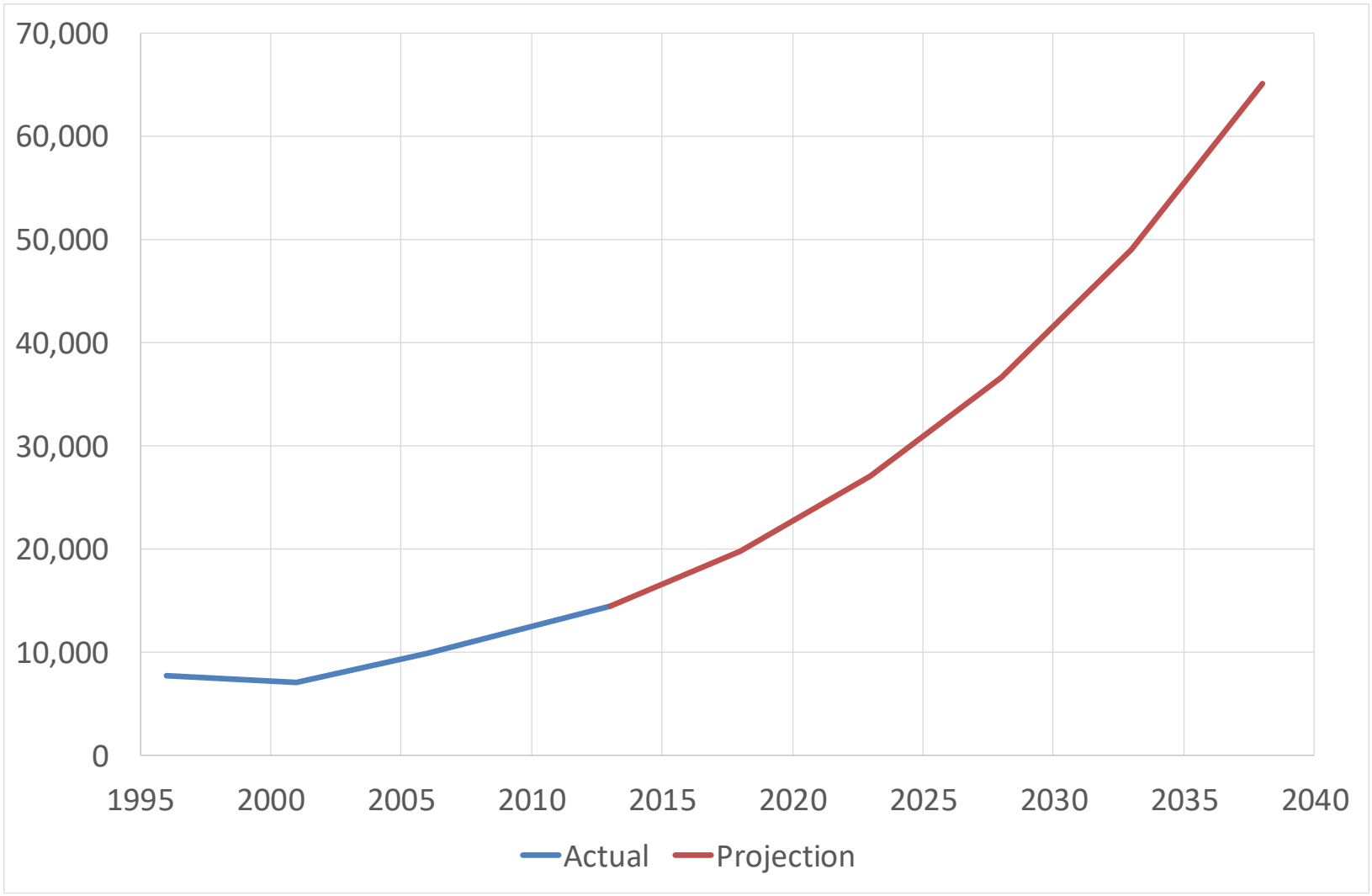
Methods

- In this paper, we adopt a modified Hamilton-Perry projection method to the projection of small ethnic groups (37 "Level 3 ethnicities" at the national level; and all Level 3 ethnic groups larger than 500 people at the regional level), with a projection horizon of 25 years
- The Hamilton-Perry method is deceptively simple
  - Using two Census datasets five years apart, a cohort change ratio is calculated for each five-year age-sex cohort
  - Each five-year age-sex cohort can then be projected forward based on these ratios
  - The exception is the age cohort 0-4 years, which is instead projected based on the child-woman ratio (using the number of women aged 20-44 years)

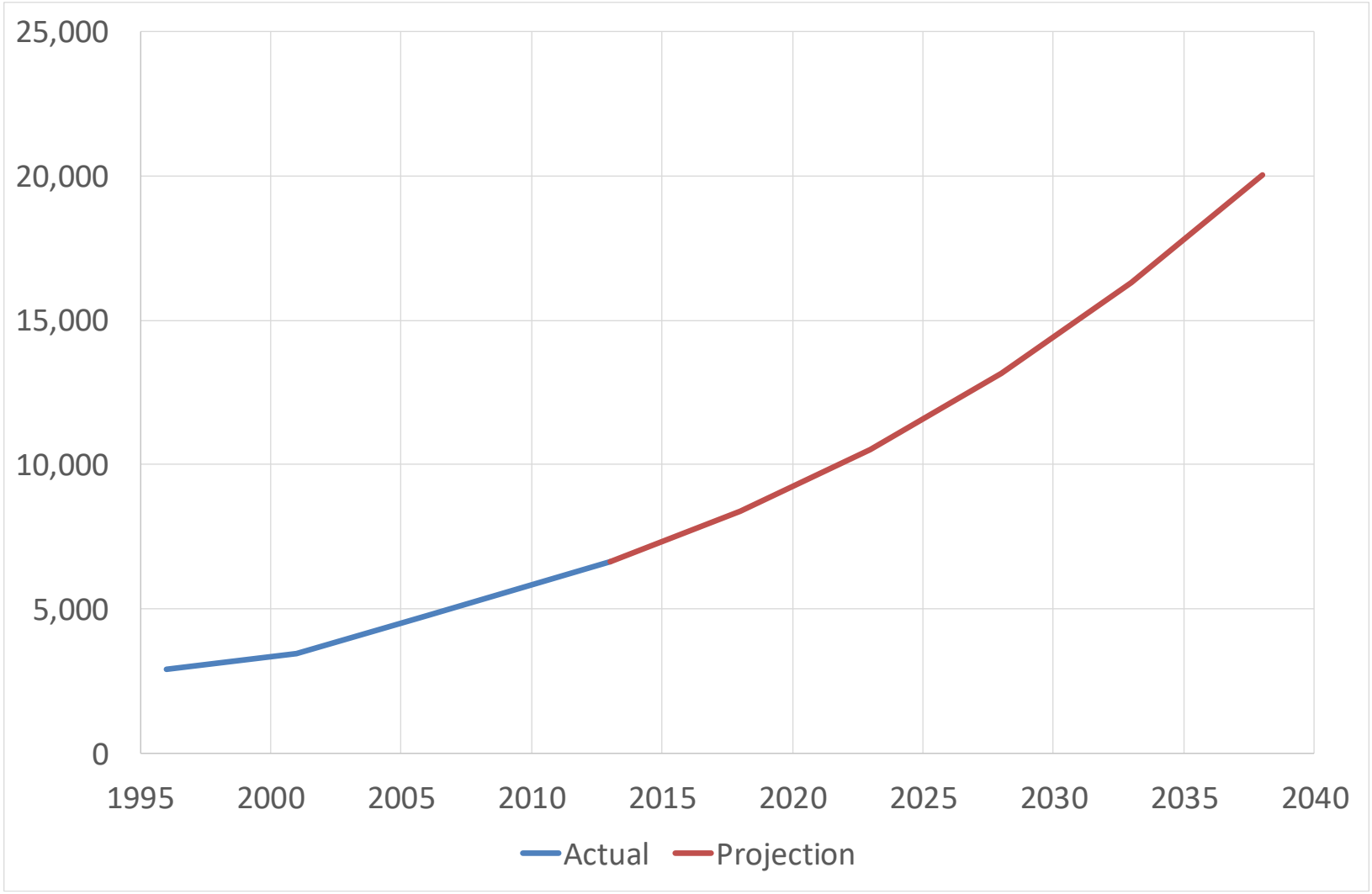
Results – 2013-base projections: Dutch population (national)



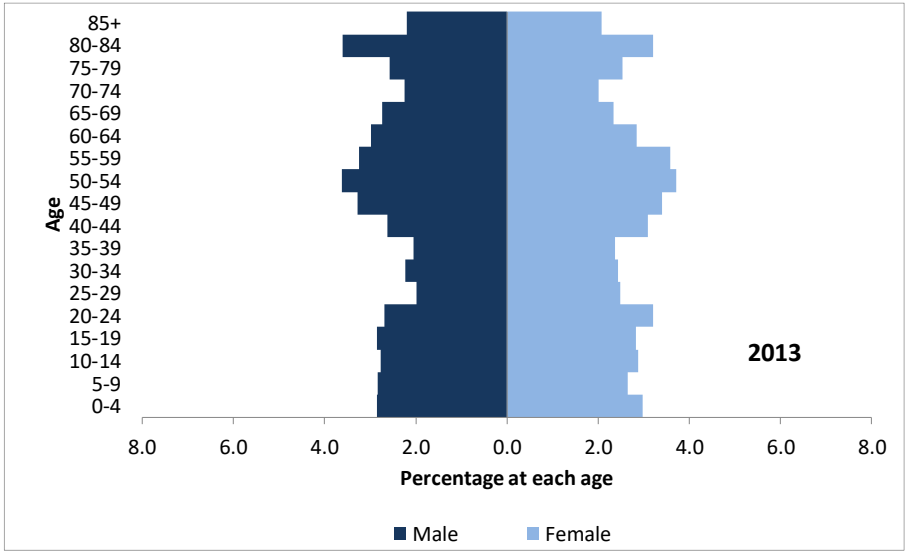
Results – 2013-base projections: Fijian population (national)

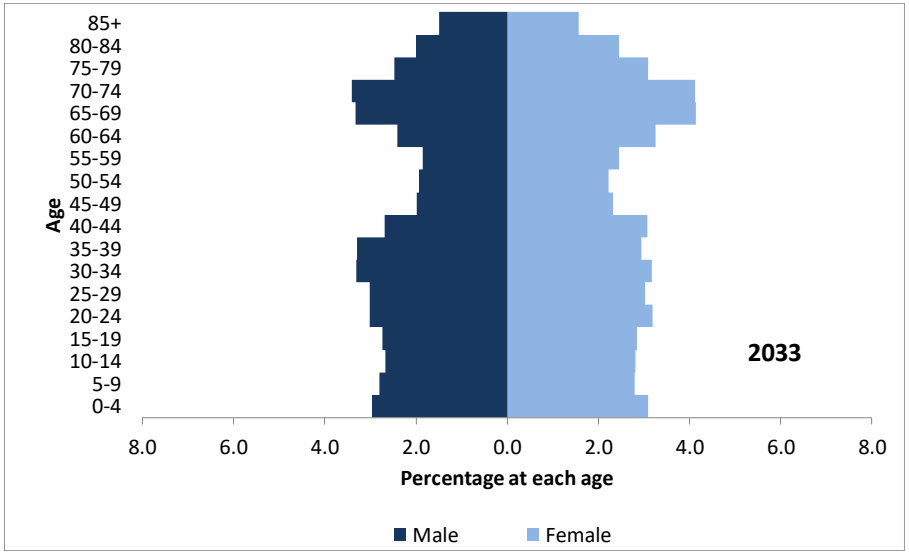


Results – 2013-base projections: Vietnamese population (national)

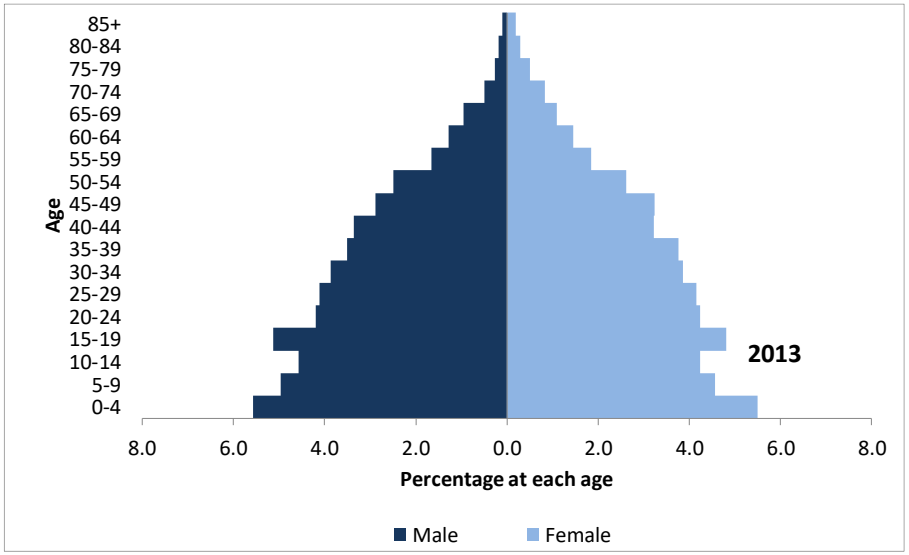


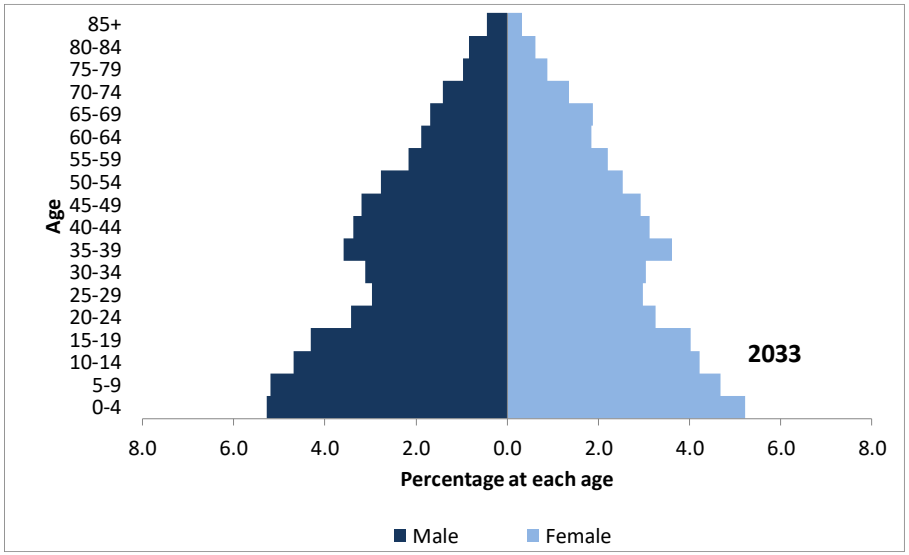
Results – 2013-base projections: Dutch population (national)



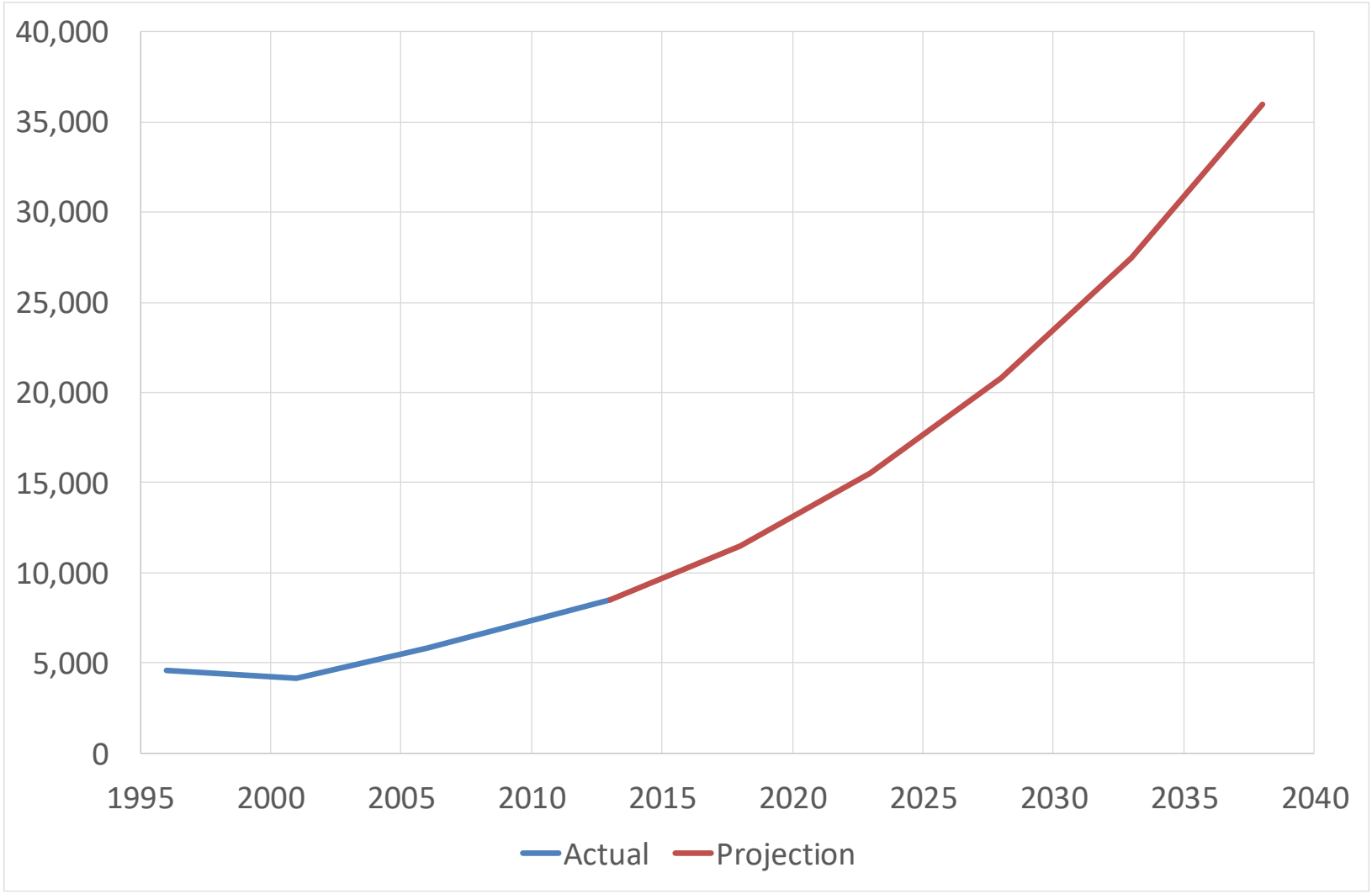


Results – 2013-base projections: Fijian population (national)

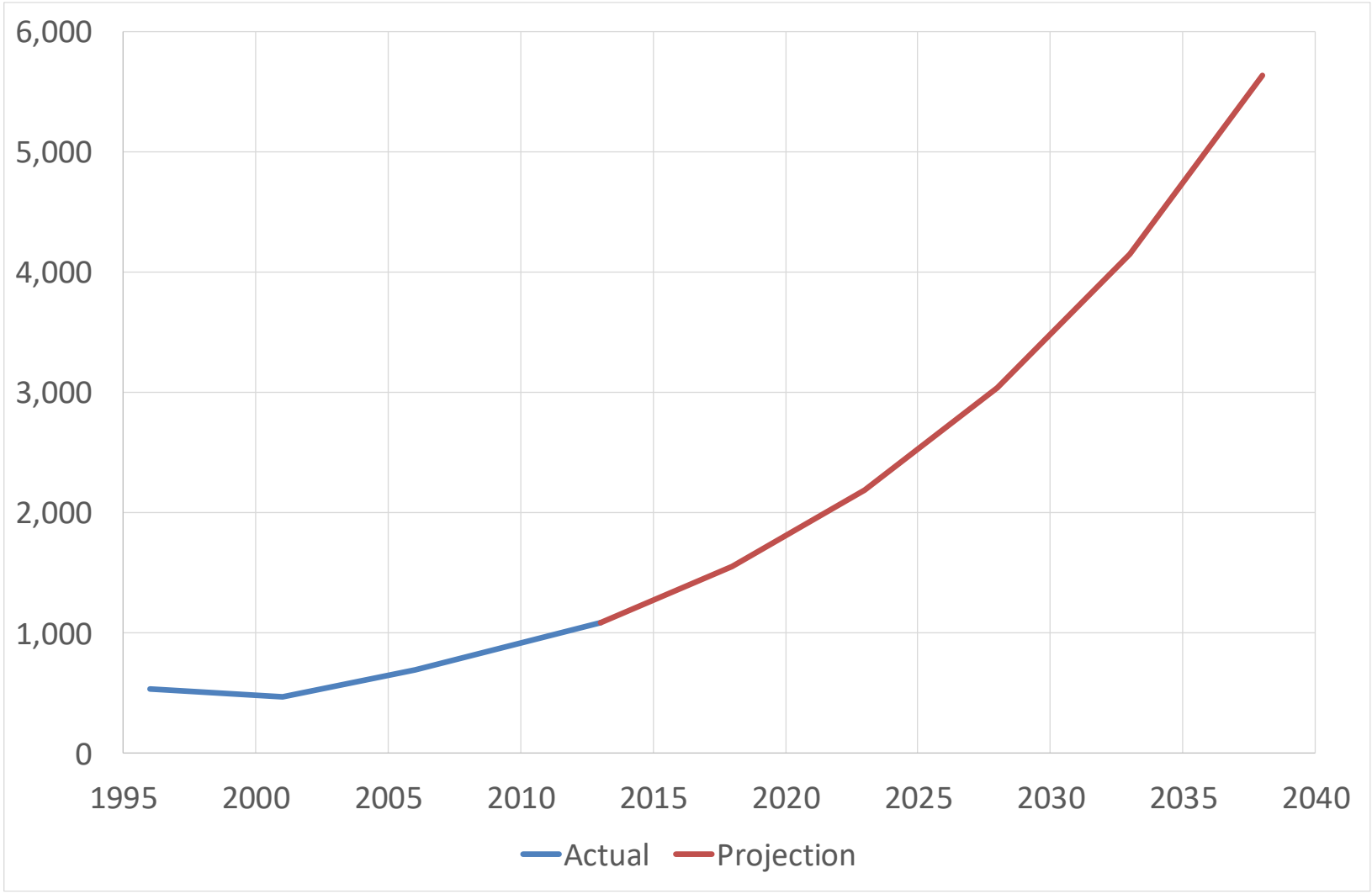




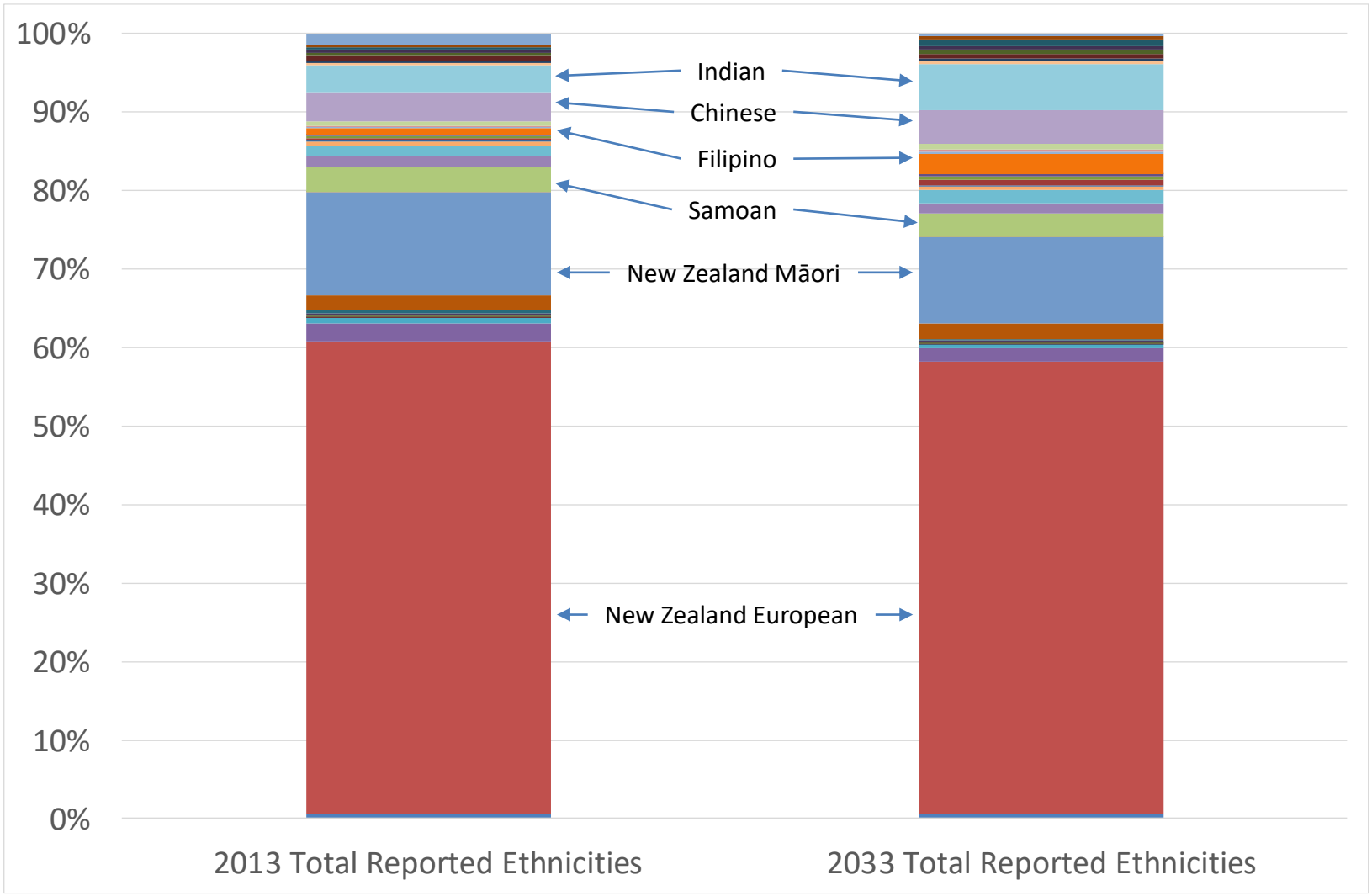
Results – 2013-base projections: Fijian population (Auckland)



Results – 2013-base projections: Fijian population (Waikato)



Results – Diversity of ethnicity at the national level



Where to from here?

- These are still preliminary results from these models. We will be doing much further work to refine the models
- In particular, we'll look at whether accuracy/plausibility is improved by using cohort-change rates averaged over several inter-Censal periods, or truncating some of the very high rates that we observed for some cohorts (especially at the regional level)
- We also need to further consider the implications of the seven-year Census period (2006-13) for the projections model

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