



# “Professional Social Science - Serving Research and Policy”

## The Work Programme of COMPASS Research Centre



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RESEARCH CENTRE

FACULTY OF ARTS  
**THE UNIVERSITY OF AUCKLAND**

Whare Wānanga o Tāmaki Makaurau

## Session after lunch – KIWI: A Modelling Focus

Multiple data sets – Barry Milne

Determinants and disparities – Roy Lay-Yee

Creating synthetic data – Barry Milne

# COMPASS Research: The Team – and KIWI

- ❑ 6 contract staff, usually 3–5 graduate students
- ❑ Big user of existing data: (i) analysis, (ii) modelling
- ❑ For our micro-simulation projects we draw on:
  - ❑ Two research fellows, two statisticians, a data manager/programmer

**K**nowledge-based

**I**nquiry system

**W**ith

**I**ntervention/policy modelling



# COMPASS Research: The simulation models



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Whare Wānanga o Tāmaki Makaurau

## 1. Care systems – data from multiple sources

- Primary care (family doctor) system
  - Models the role of the “family” doctor
- Balance of care systems
  - Extends model to incorporate other care elements

## 2. Life course – data from longitudinal studies

- Early life course (childhood)
  - Uses existing cohort studies for ages 0-13
- Later years
  - Uses existing longitudinal studies for over 65s

# Micro-simulation Modelling. Purpose



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- ❑ Build a realistic computer-based model
  - ❑ For example, of early childhood
  
- ❑ Estimate the “drivers” of the model from real data
  - ❑ For example, an actual birth cohort study
  
- ❑ Create a synthetic data set that replicates the real one by applying those “drivers”.
  
- ❑ Assess policy options on the synthetic data by altering key parameters

# Micro-simulation modelling. An example



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- ❑ We started with data from a “real” birth cohort
  - ❑ Christchurch Health & Development Study, with 1265 children born 1977 in Christchurch, followed ever since
  
- ❑ We derived statistical rules to create a synthetic data set (a ‘virtual cohort’) through to age 13
  - ❑ A sample of children with typical biographies over the life-course, allowing for variation
  
- ❑ We then simulated what might happen if policy were to change, by altering parameters

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