

12th Accident Compensation Seminar 2009 Rising to the Challenge

Melbourne 22nd – 24th November 2009



Institute of Actuaries of Australia



An Analysis of Australian Health Insurers' Claims Data

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Old age is a shipwreck.

(Charles de Gaulle)



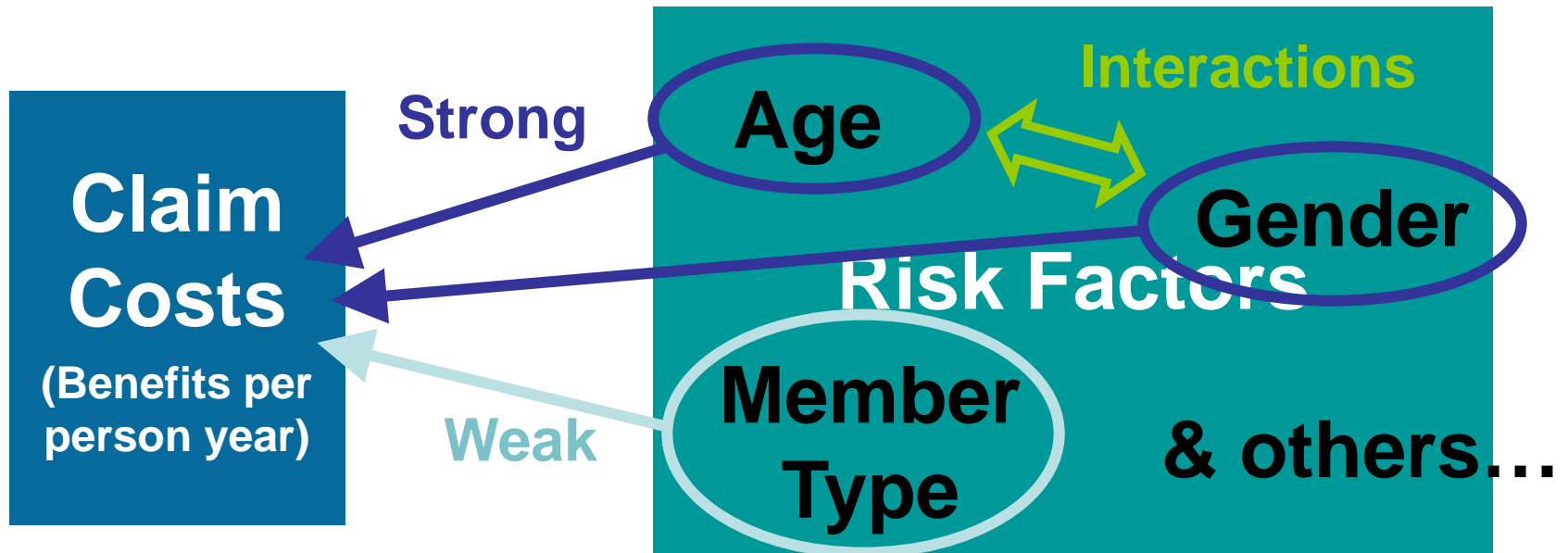
Introduction

- Ageing population is leading to changes in risk profile
 - Impact varies – within and across industries
 - Rating restrictions – available responses limited
 - Gaps in data – only partial visibility of the issue
- Health is an alternative source of data!



Analytical Tool

- Generalised Linear Model
 - Flexible model and error structure
 - Deals with correlations between factors





Parallel Agendas

Health Insurance

- Using Generalised Linear Models to analyse Health claims data
- “Industry Analysis”
 - Selected 9 of 18 (of 37 funds in market now)

Accident Comp

- Infer bigger picture impact of ageing population from a related industry
- “Case Study”

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Similarities and Differences



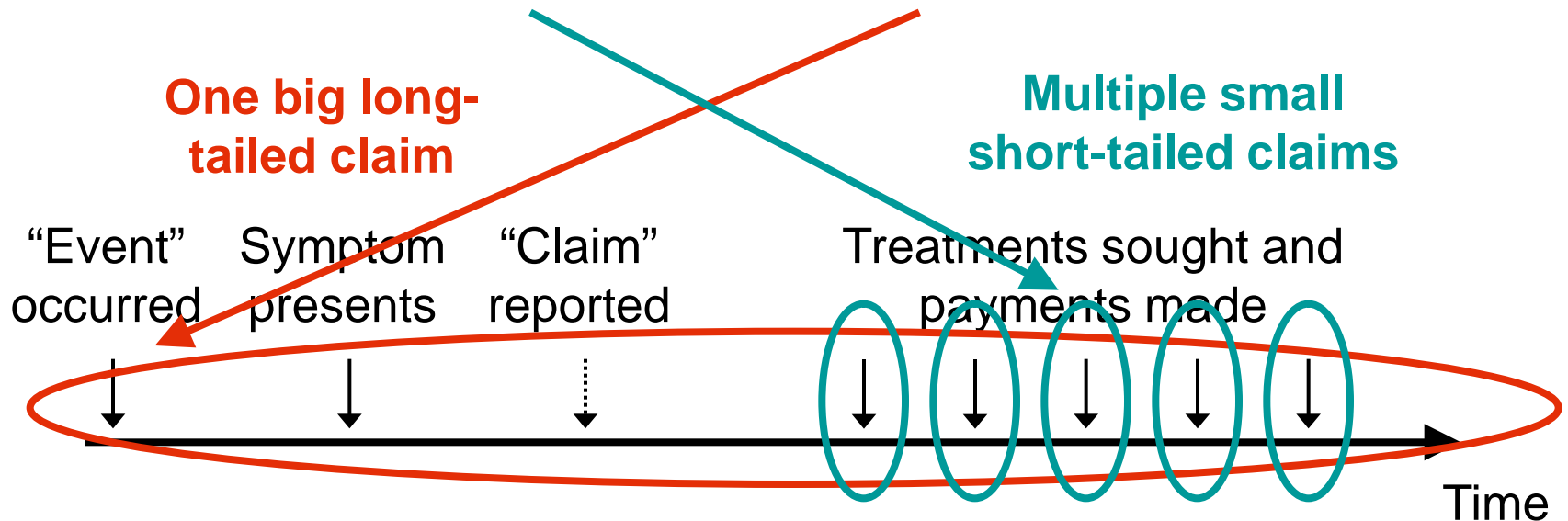
Claims

Health Insurance

- Treatment for **general illness**

Accident Comp

- Restitution from **specific event**





Pricing

Health Insurance

- **Community rating,** so cannot rate by:
 - Health status
 - Age
 - Gender
 - General claiming history
 - And more...

Accident Comp

- **Regulated but extent differs**
 - Prescribed formula
 - Floor / ceiling
 - Varied restrictions

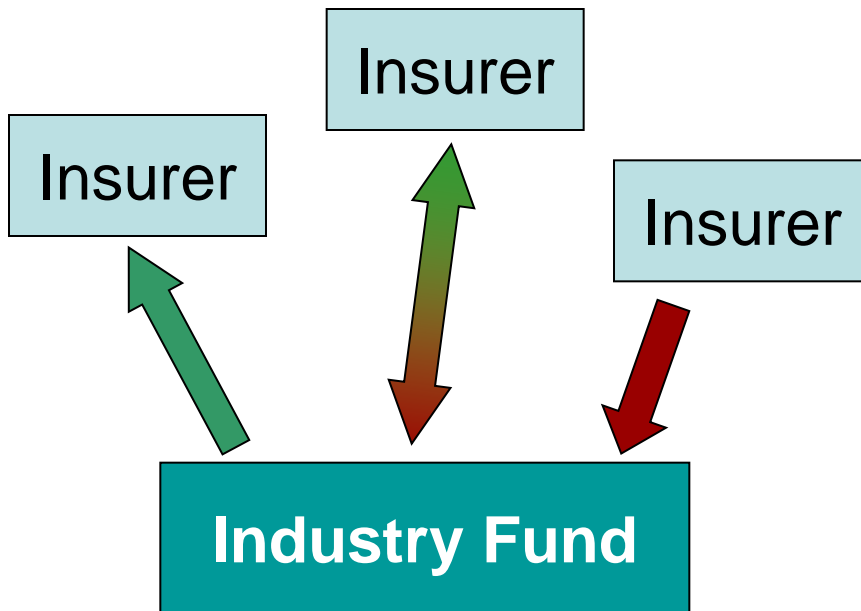
Often important rating factors for most general insurance products (including accident comp)



Risk Sharing

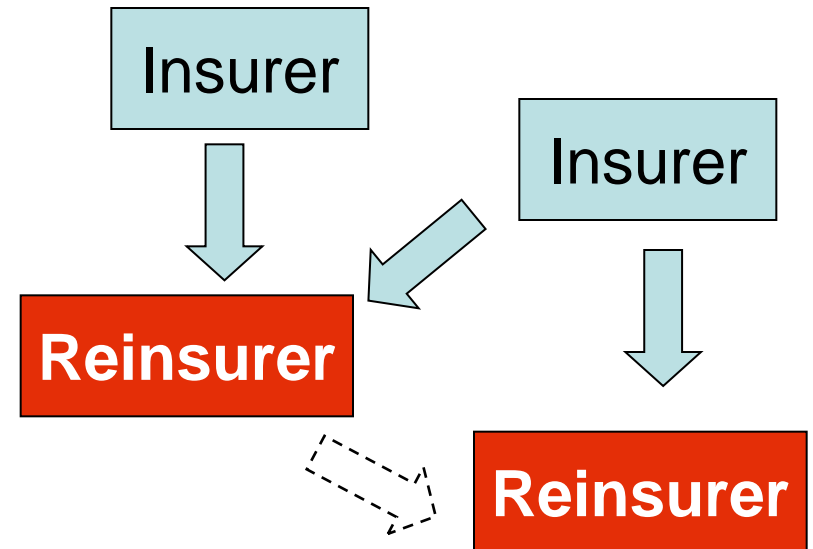
Health Insurance

- Risk equalisation



Accident Comp

- Reinsurance





Short Summary

- Ageing population is leading to profile changes
 - Impact on claim costs
- Limitations on use of risk factors in rating
 - Various and changing levels of cross subsidy
- What are the key risk factors for Health claims?

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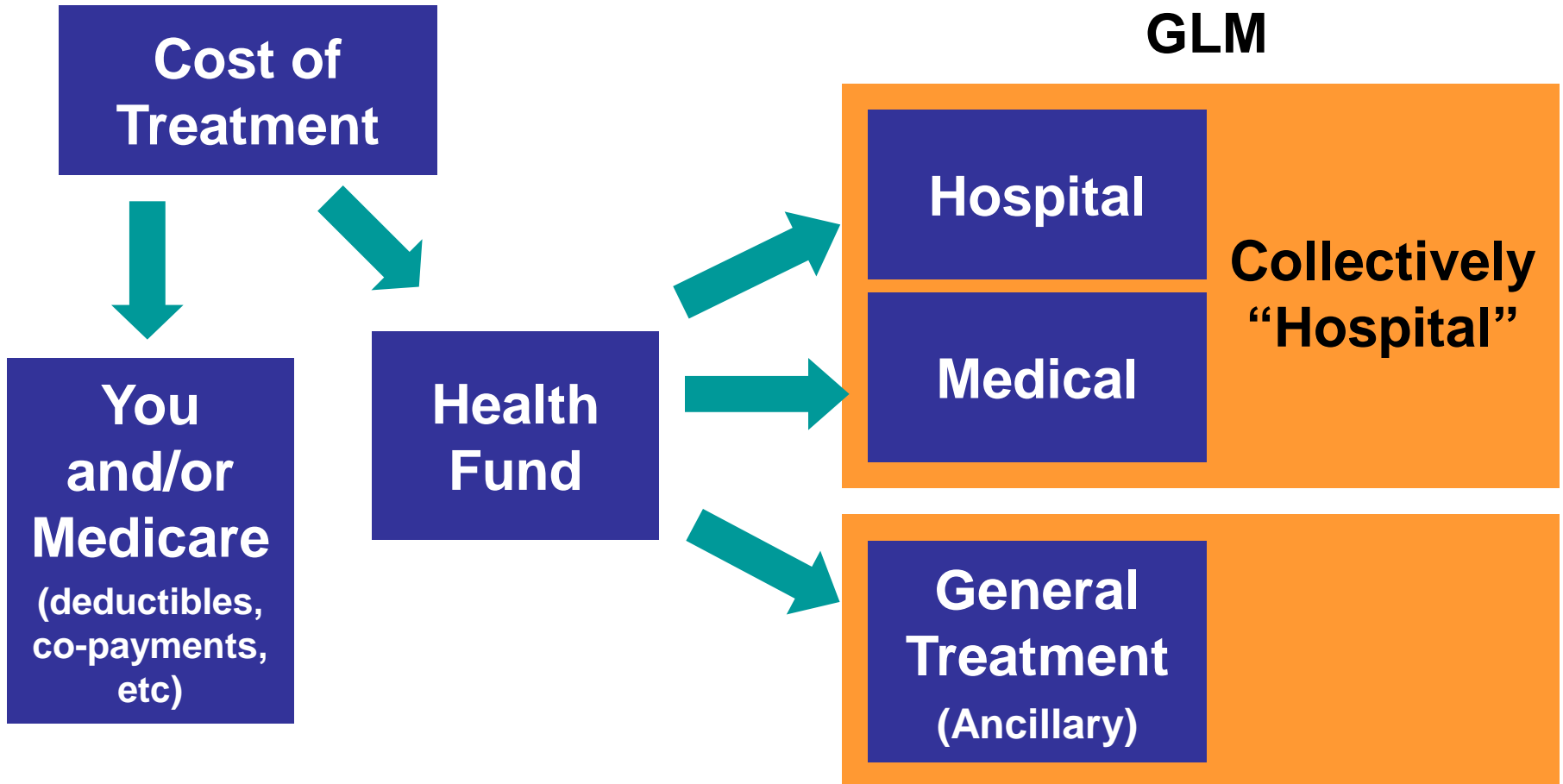
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The Model



Scope of Model





Risk Factors

- Age
- Gender
- Level of Cover – budget, top etc.
- State
- Member Type – singles, couples etc.
(PHIAC Class)
- Service Year

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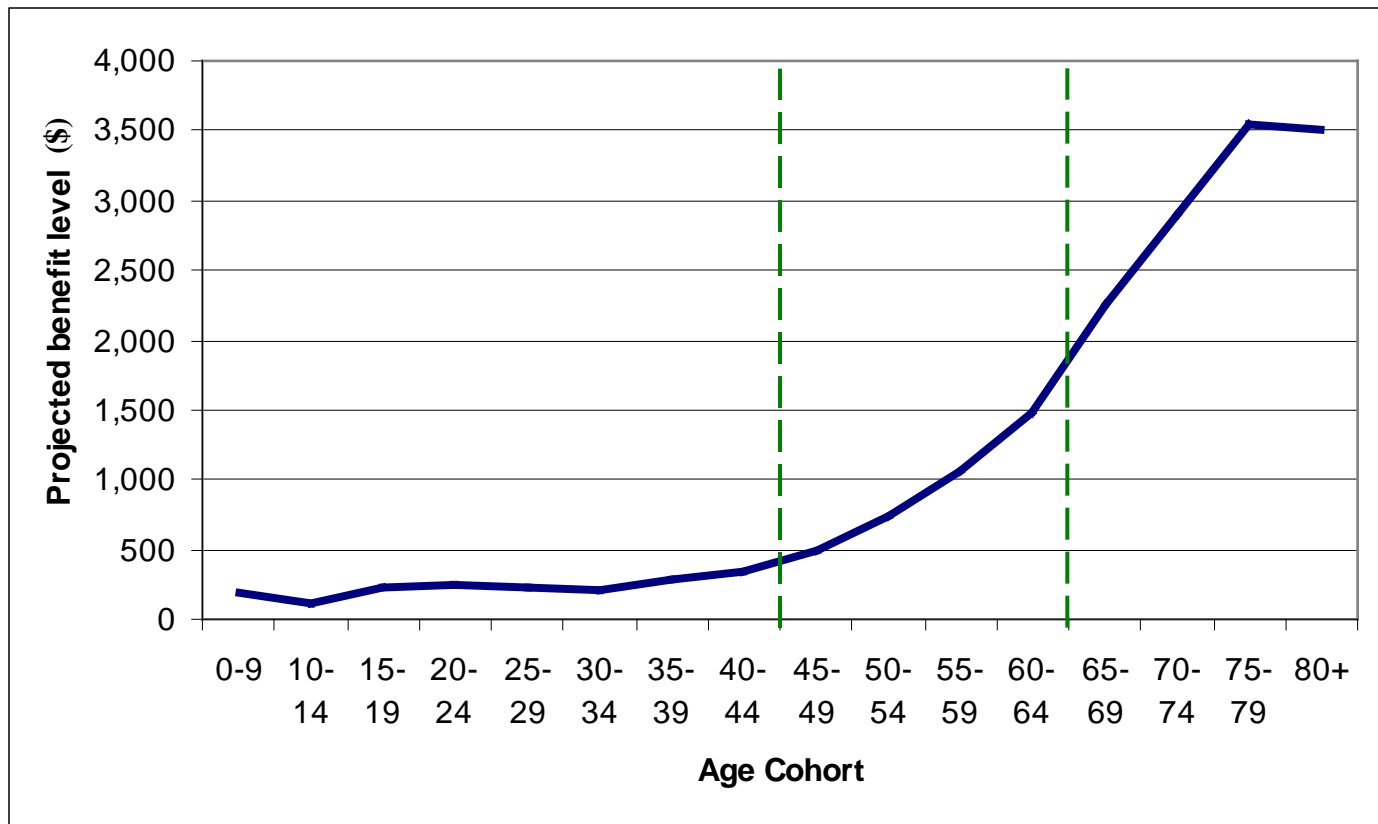


Model Results – Hospital Benefits



Age and Gender

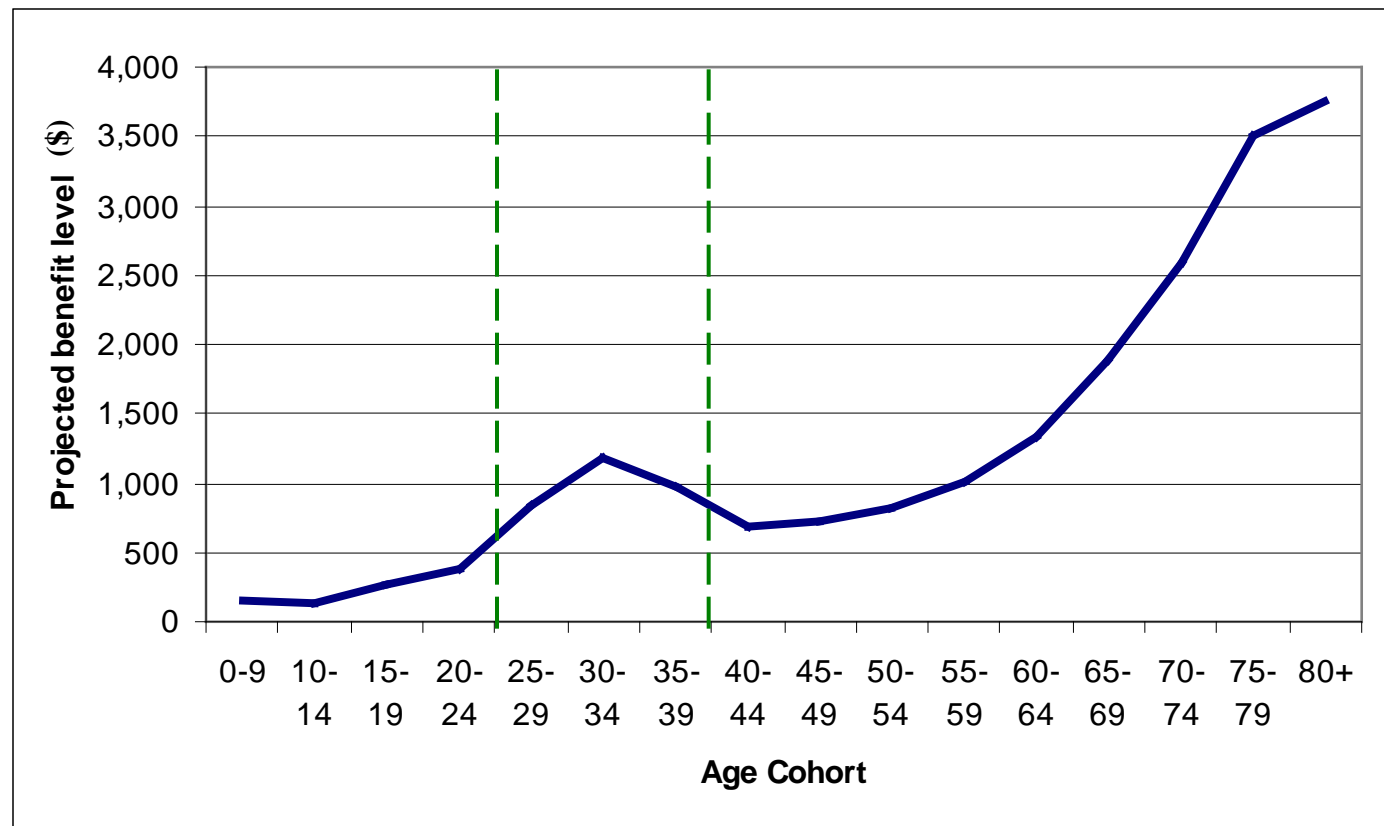
Males only





Age and Gender

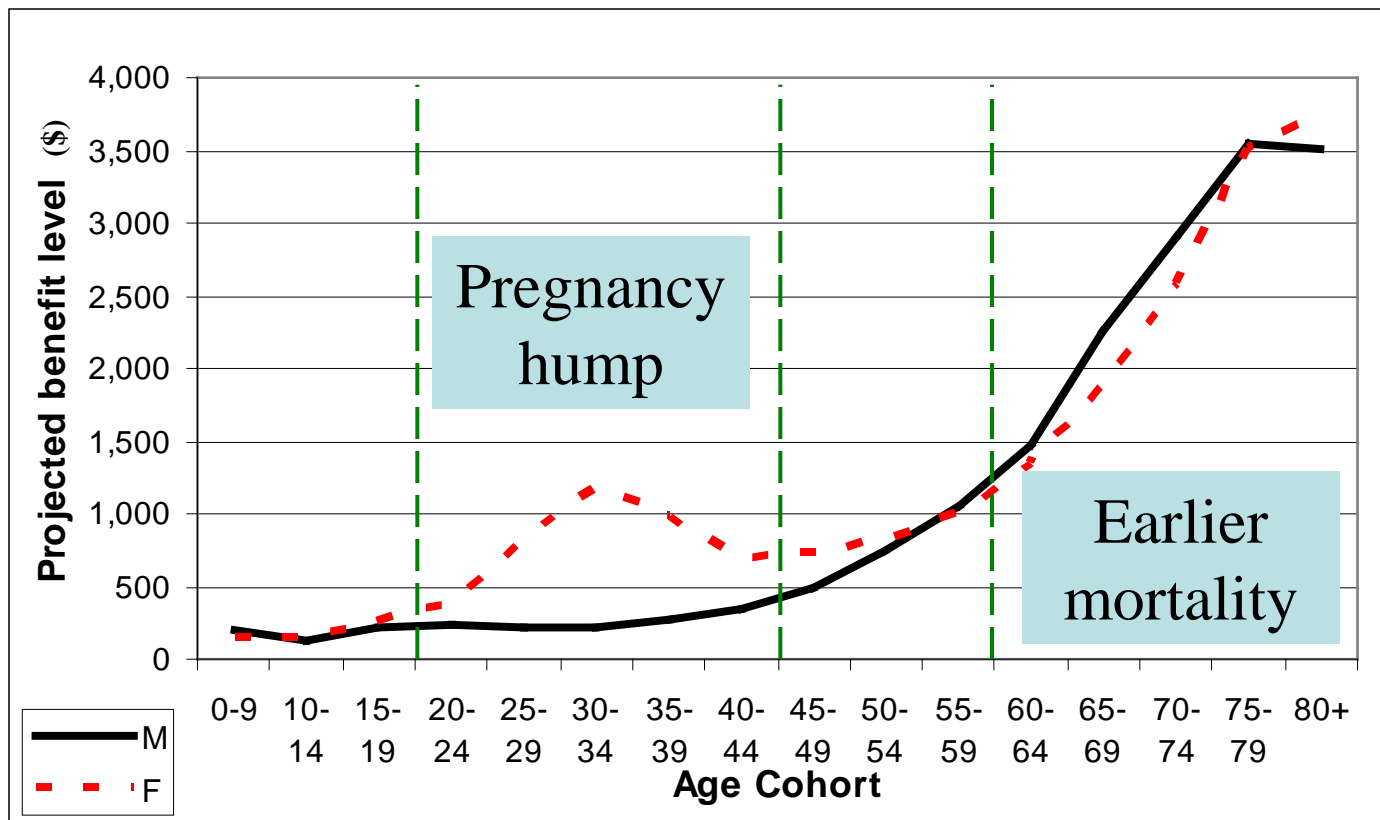
Females only





Age and Gender

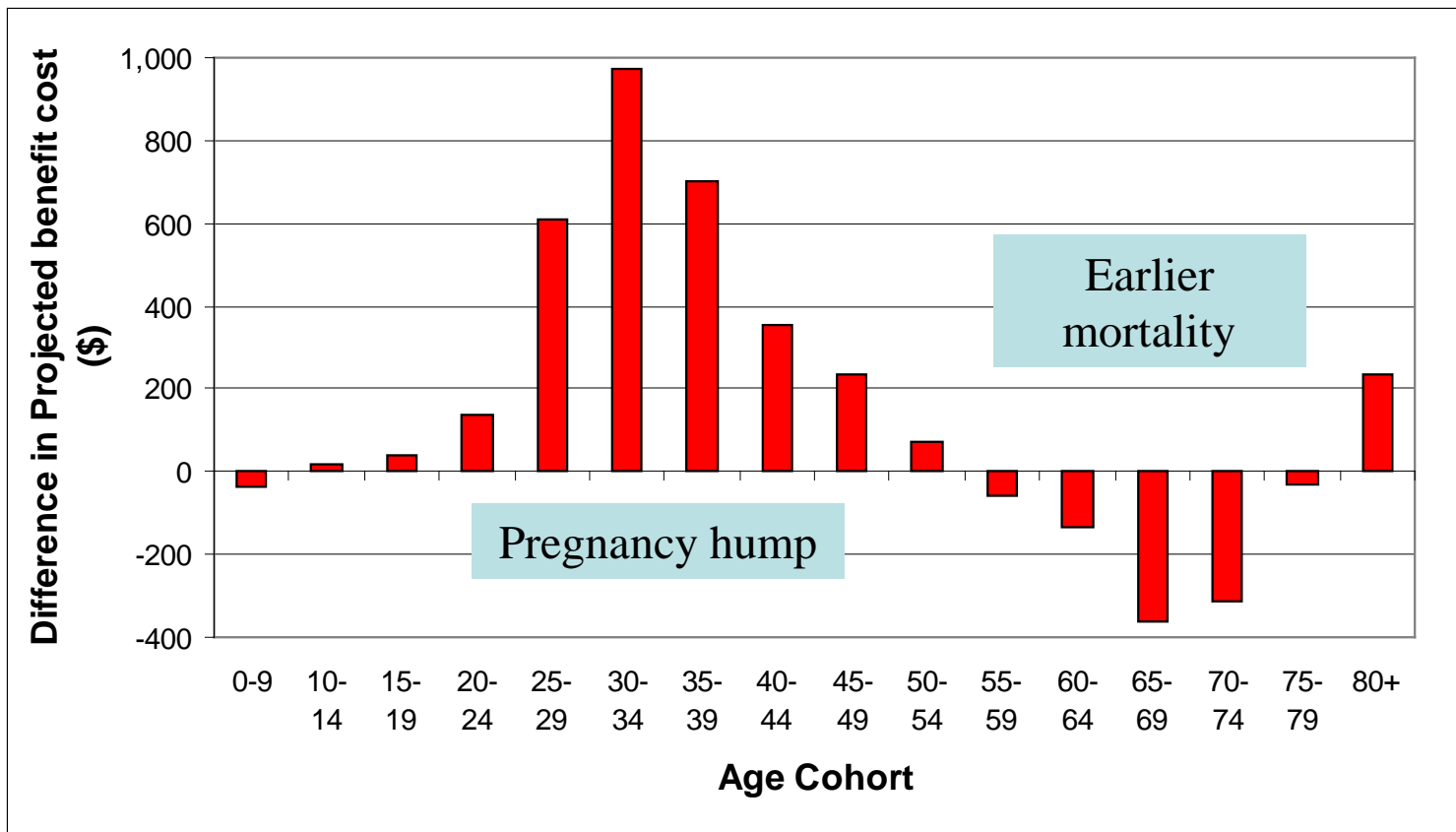
Males and Females





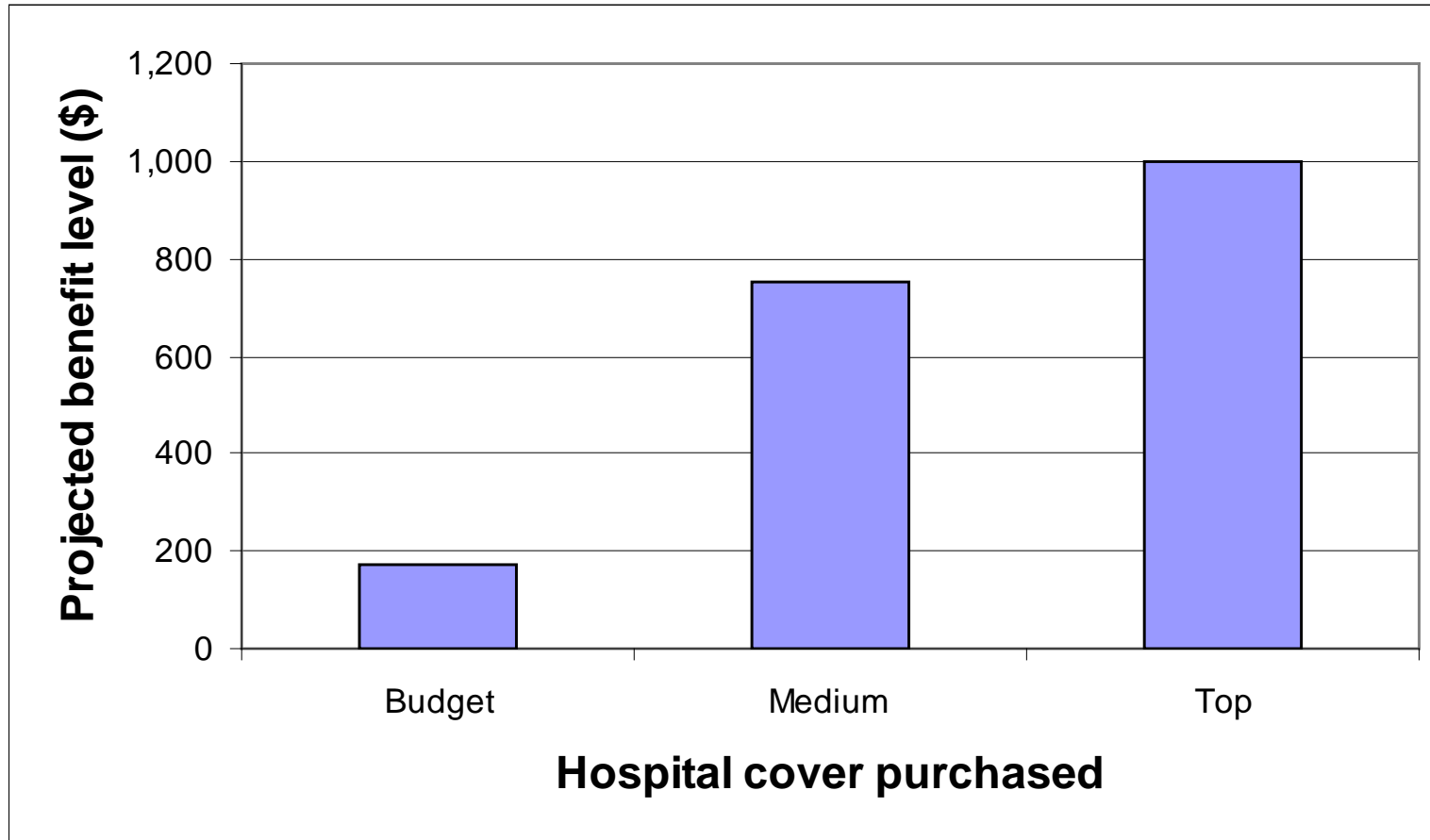
Age and Gender

Males and Females - Relativities



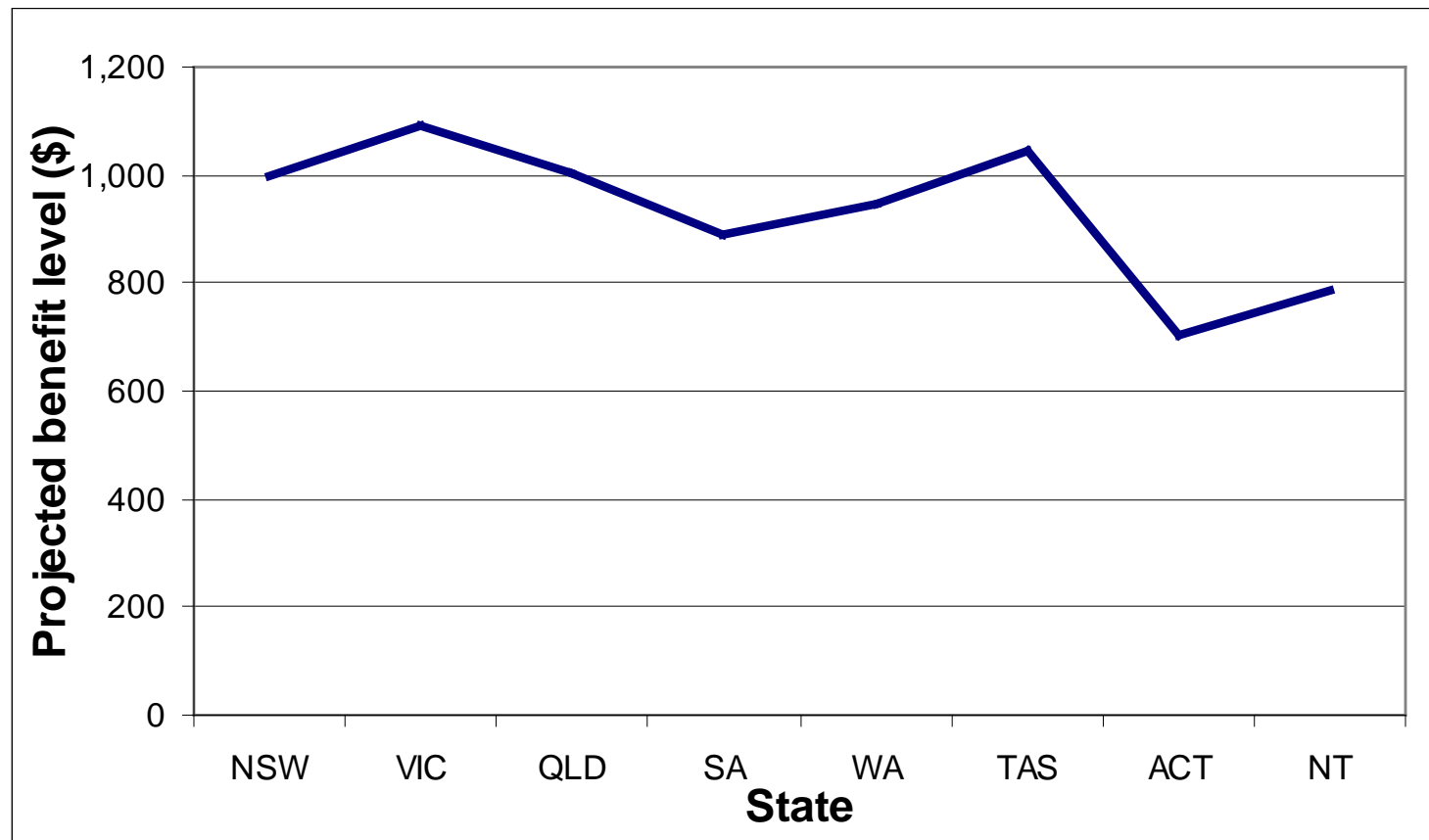


Level of Cover



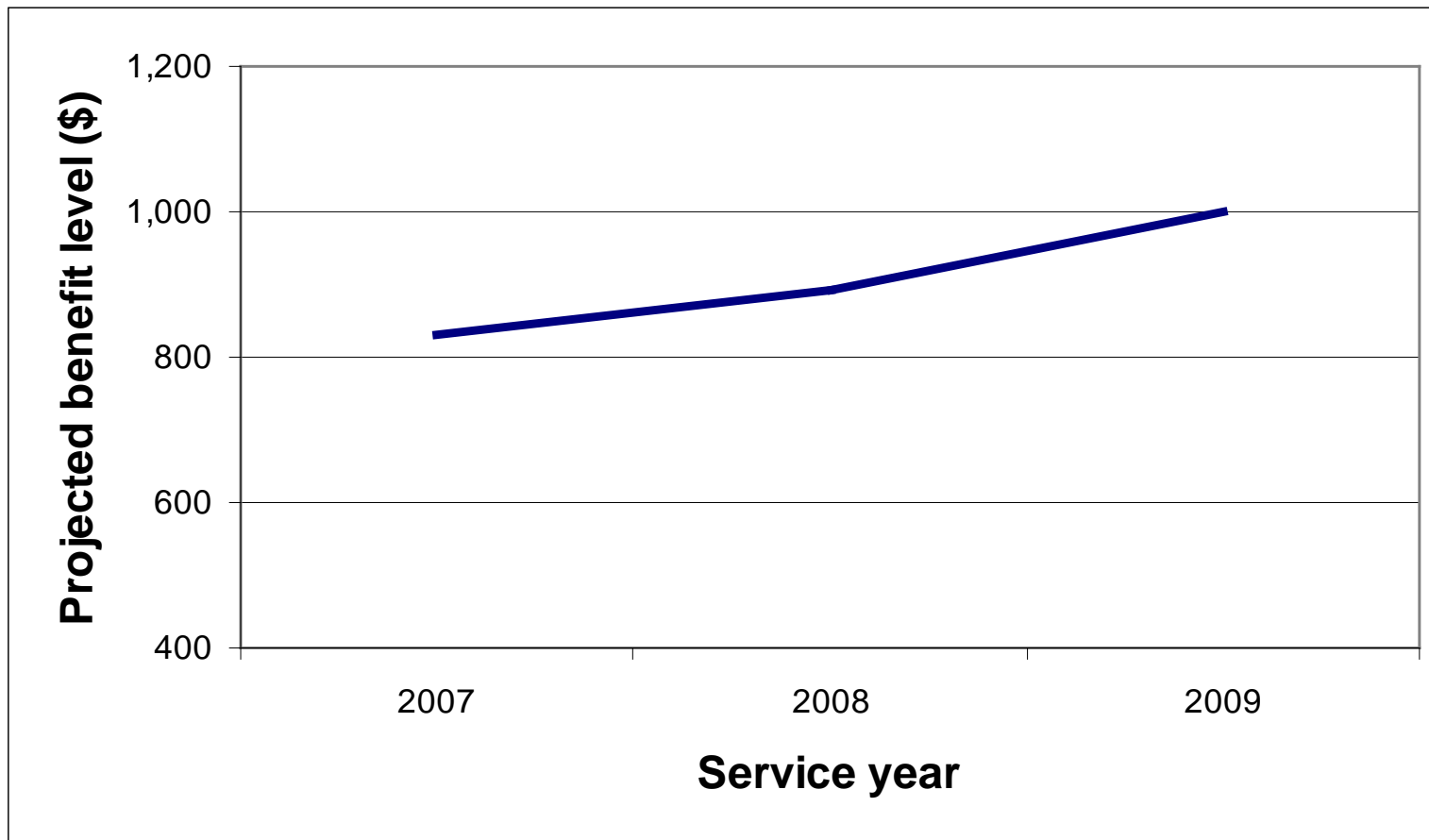


State





Service Year



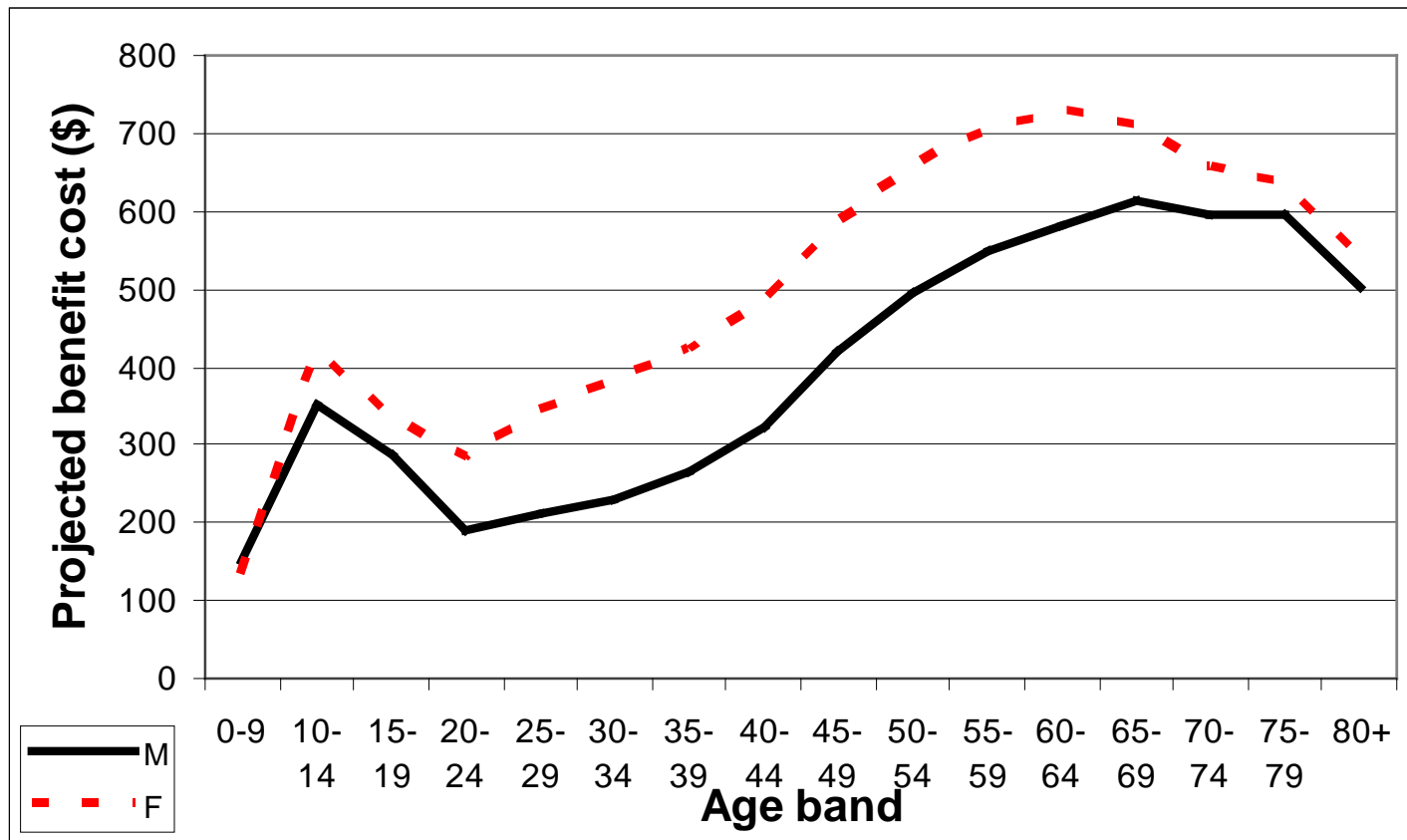


Model Results – General Treatment (Ancillary) Benefits



Age and Gender

Males and Females





Age and Gender

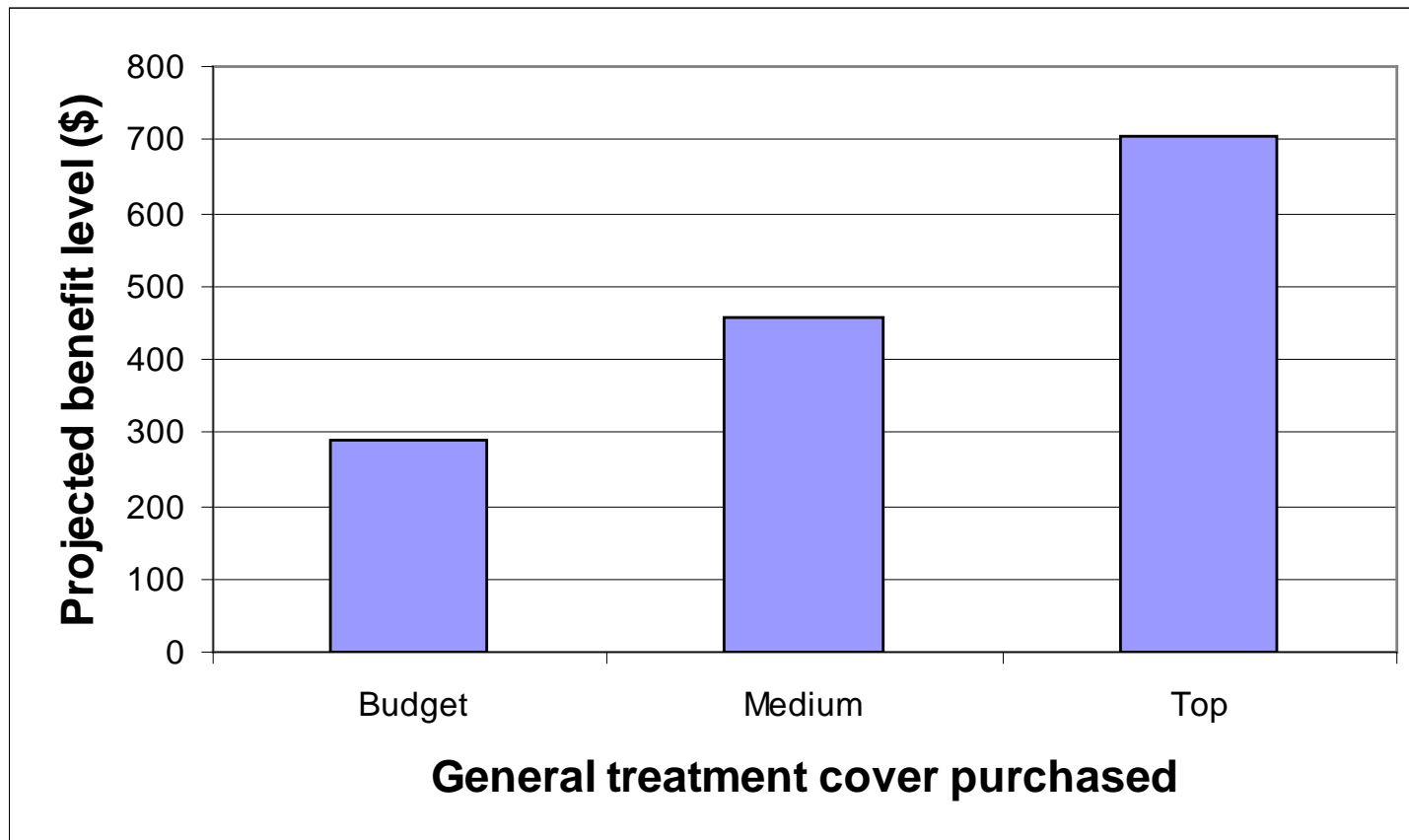
Males and Females - Relativities





Level of Cover

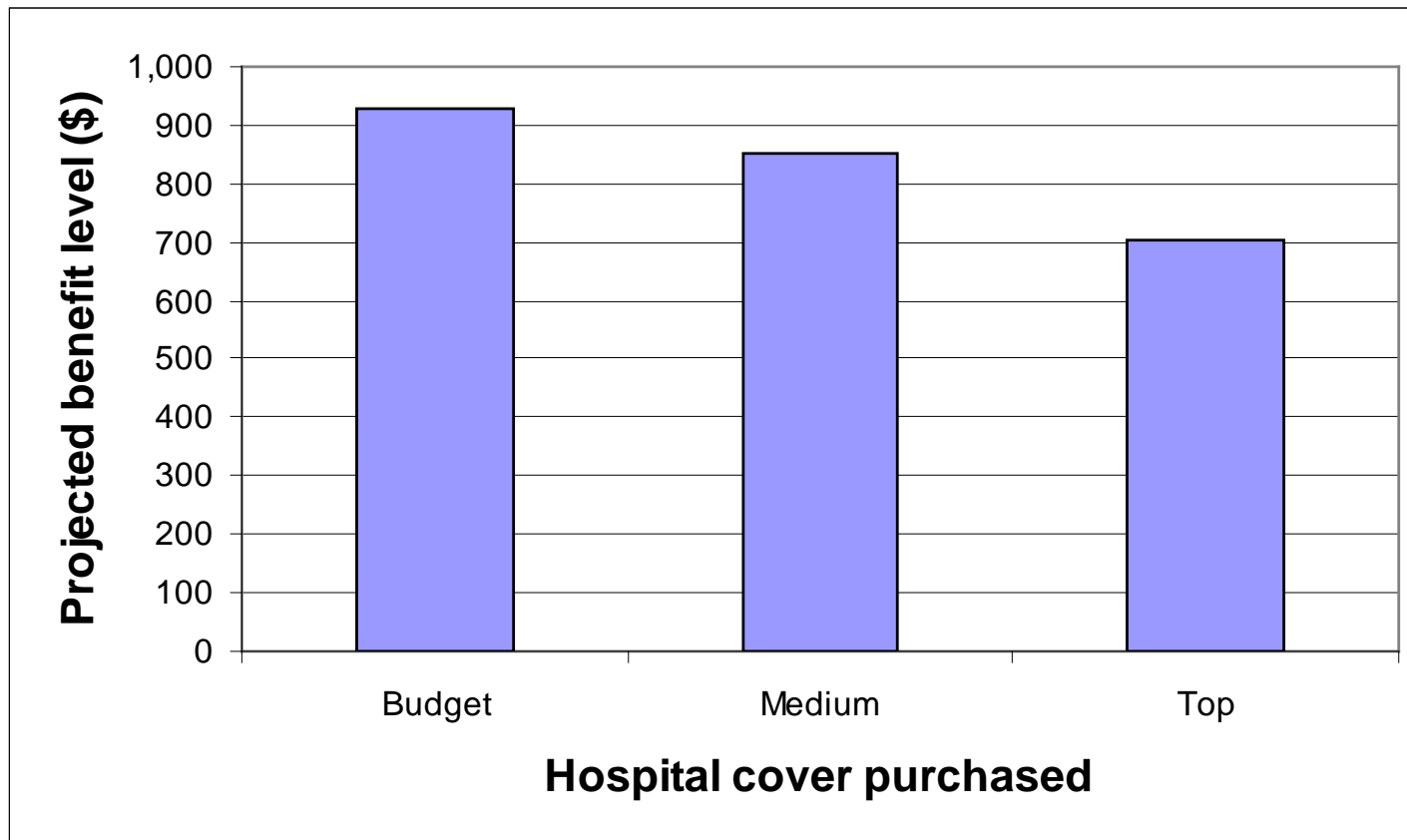
General treatment cover





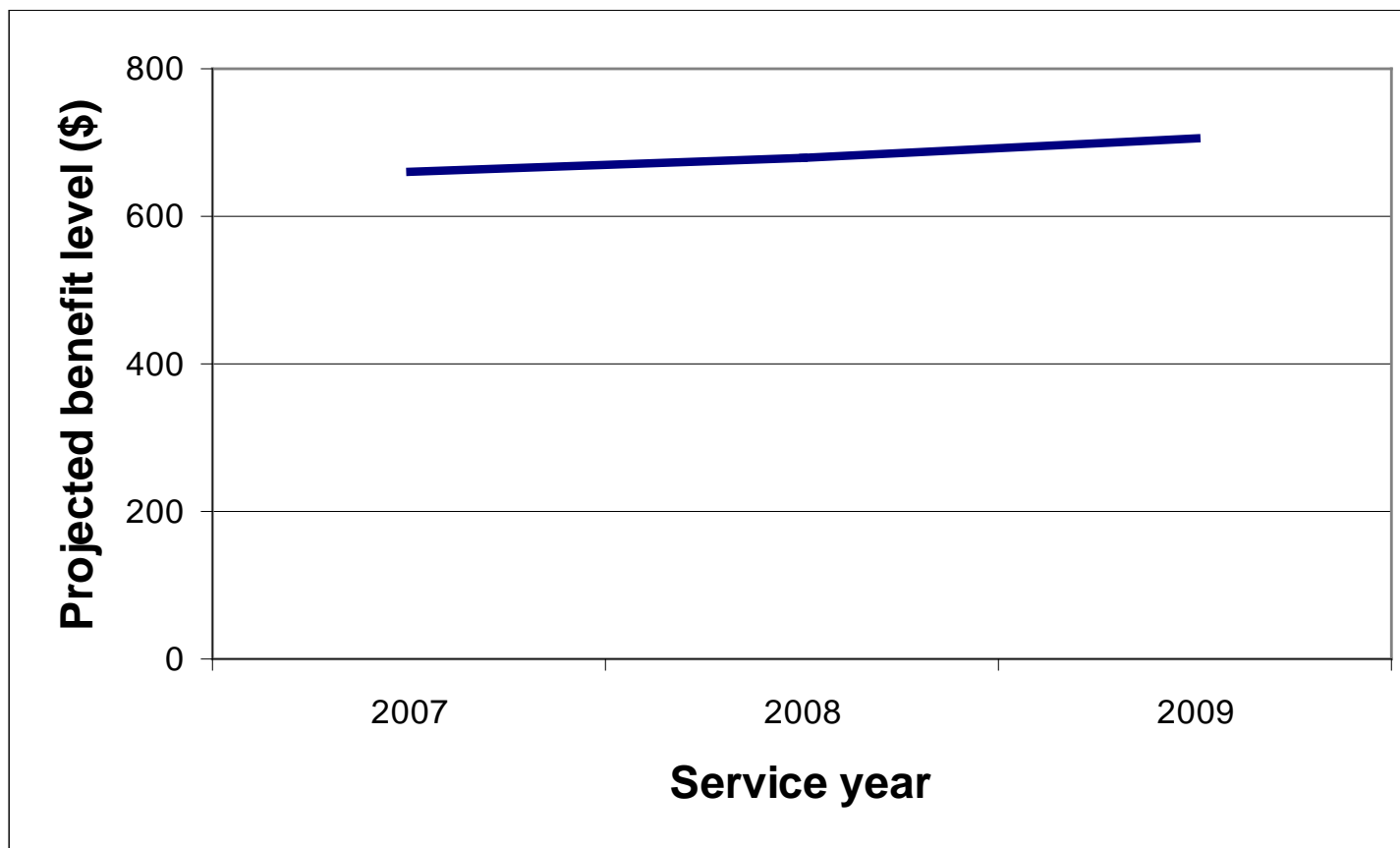
Level of Cover

Hospital cover





Service Year



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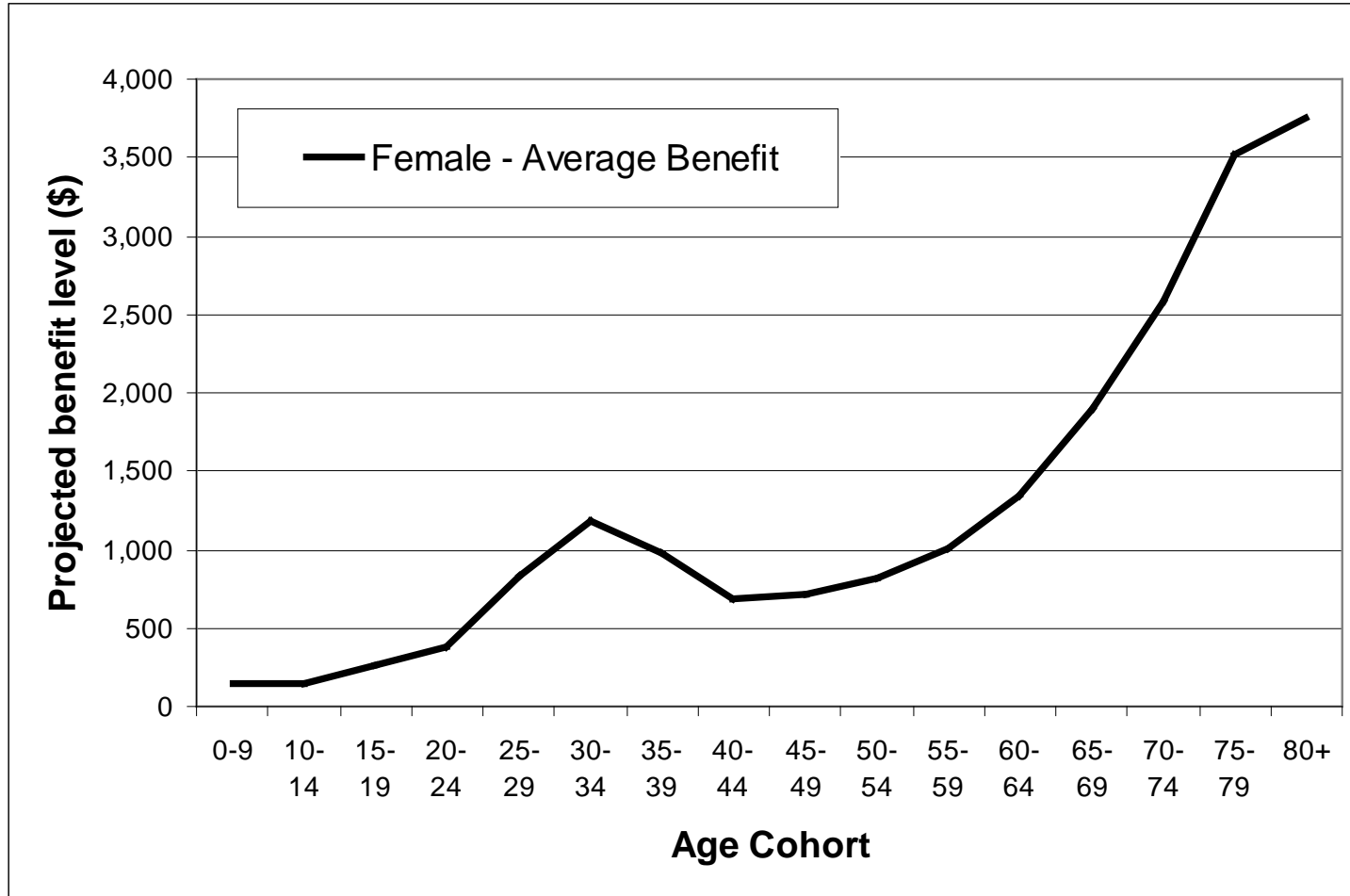
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Implications

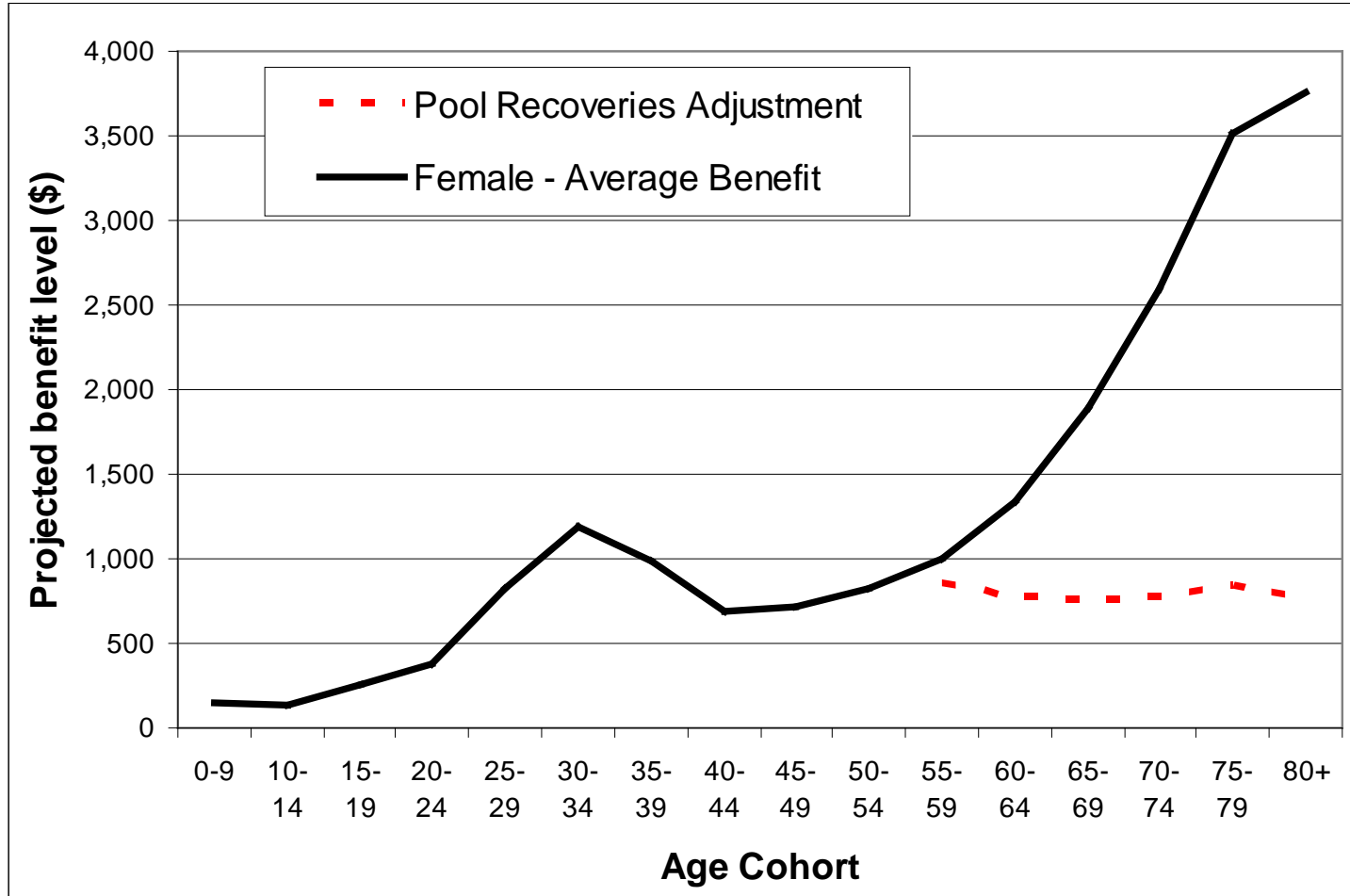


Risk Equalisation



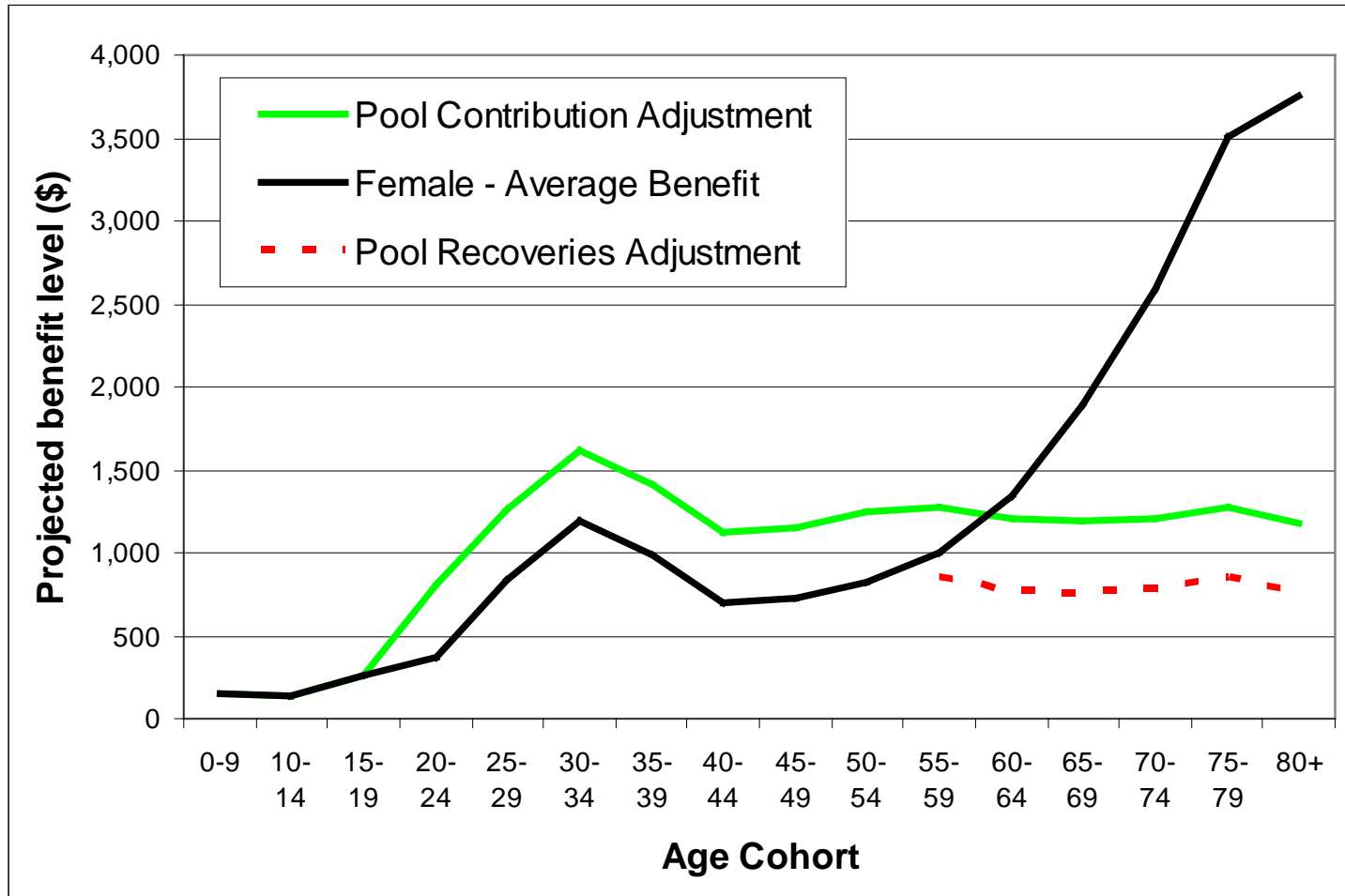


Risk Equalisation



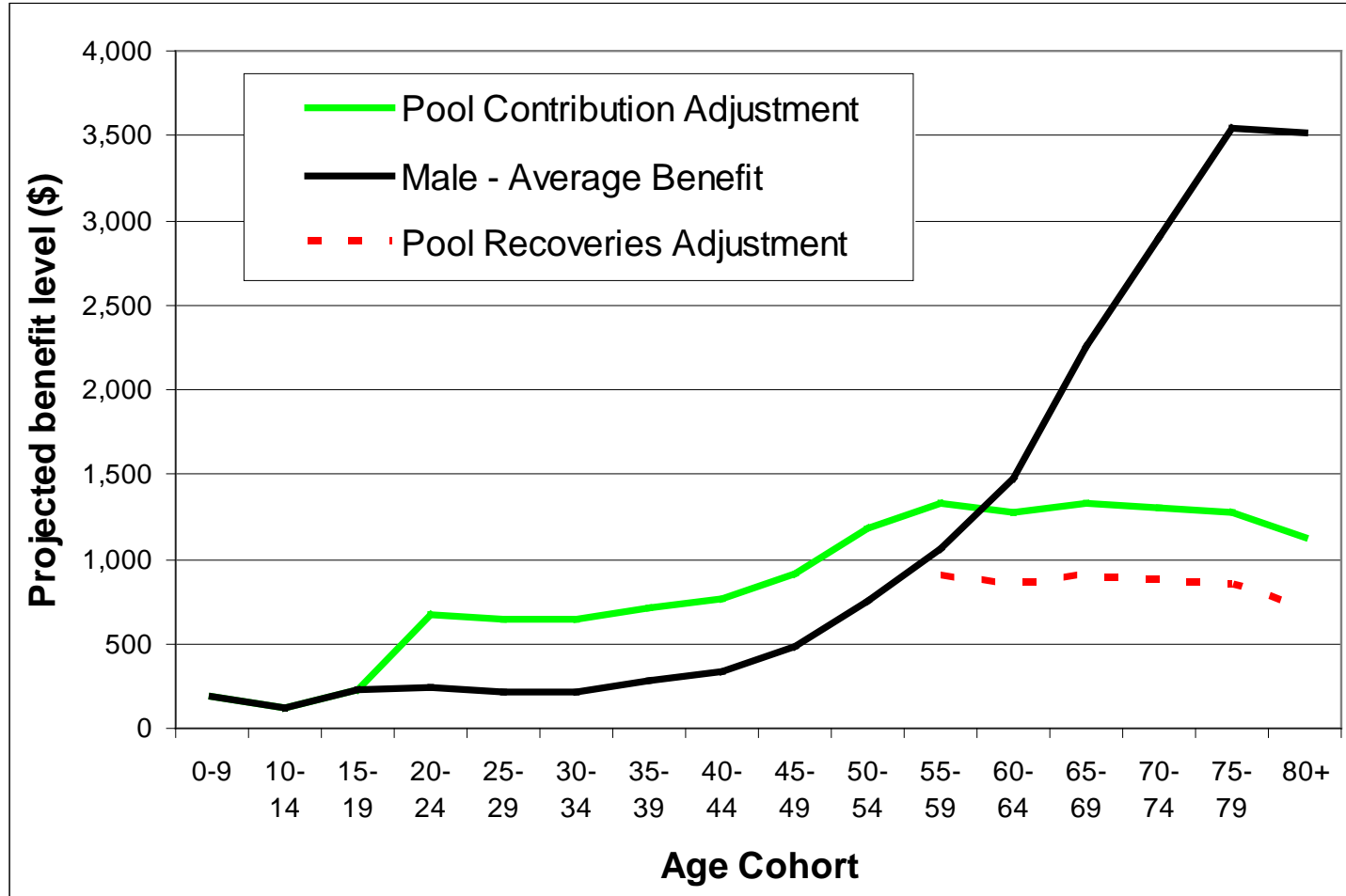


Risk Equalisation



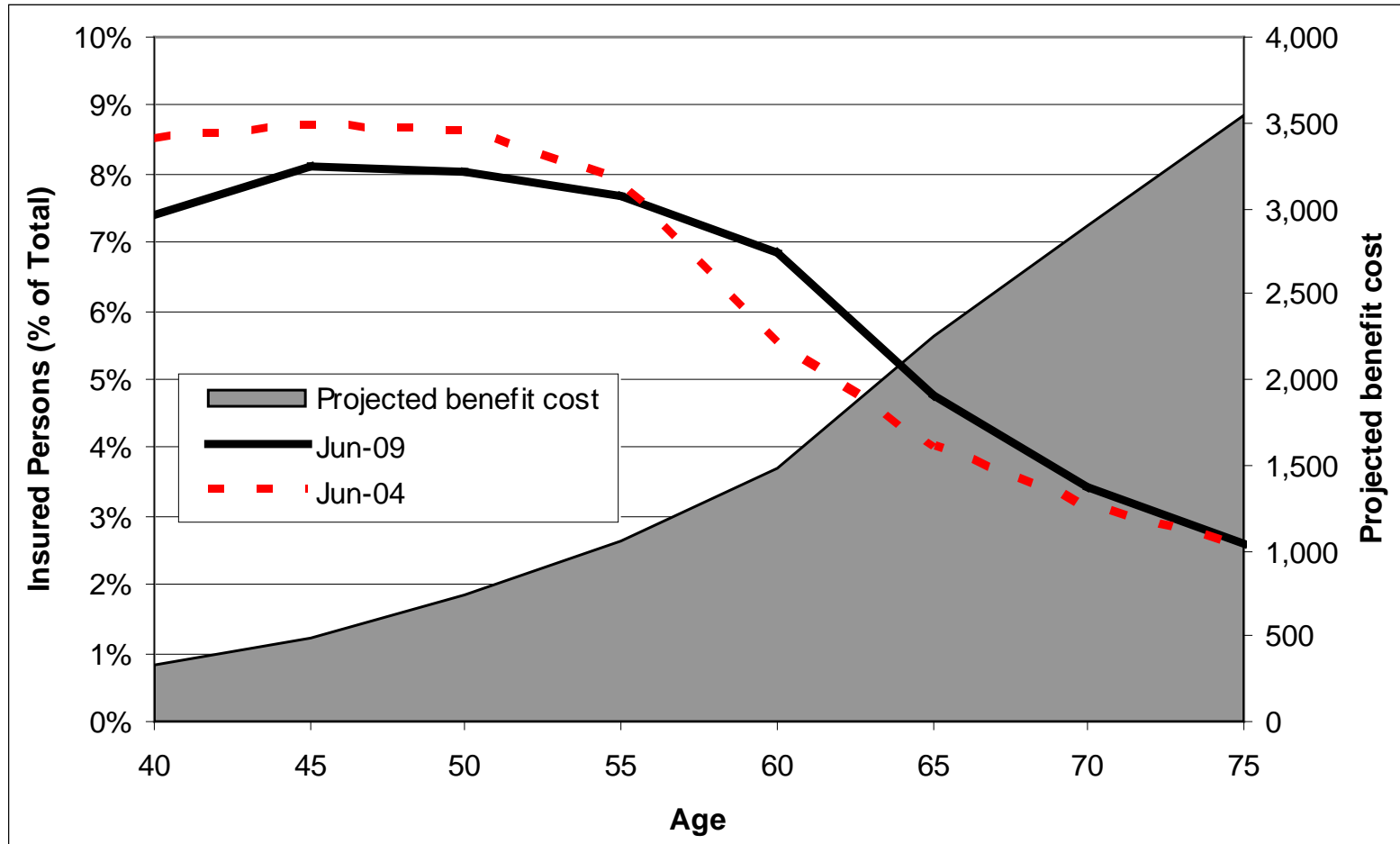


Risk Equalisation





Ageing Population



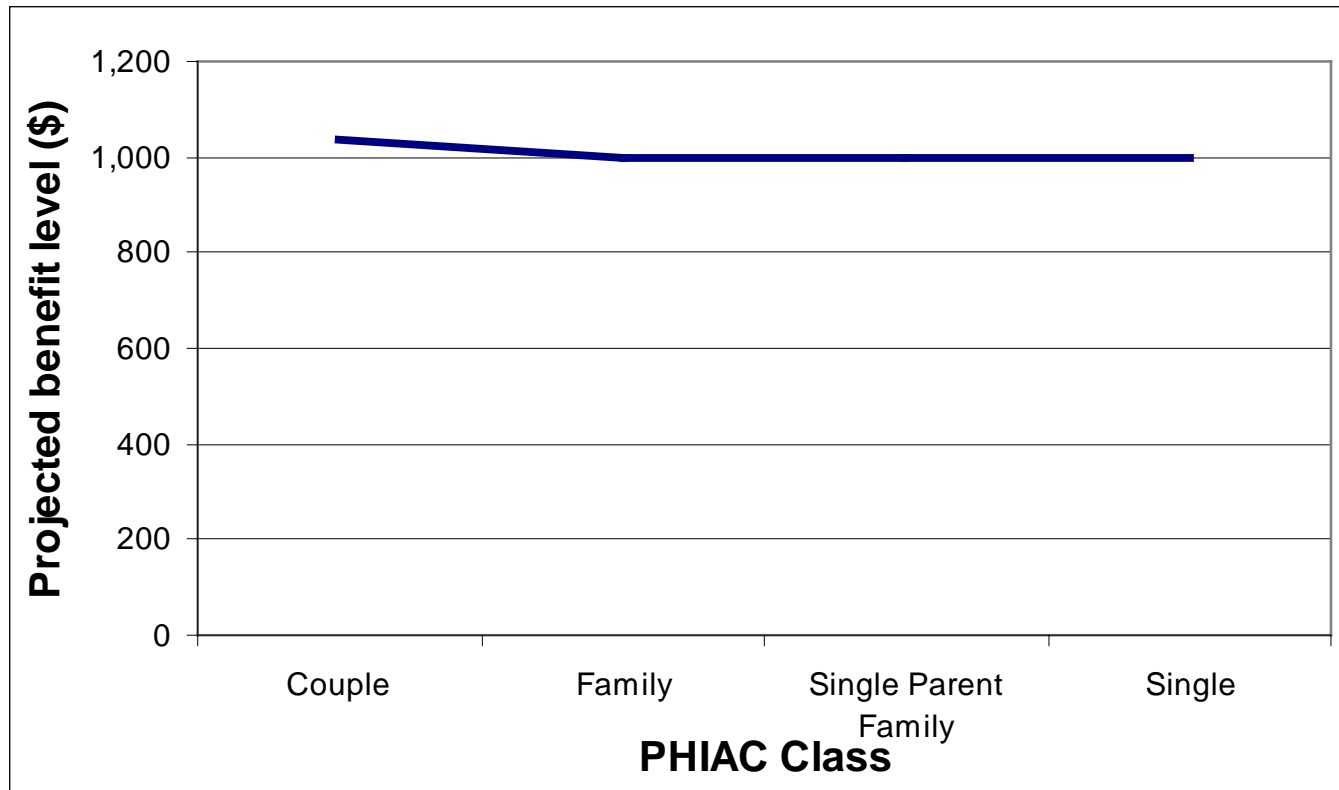


Impact of Ageing Population

- Increased proportion of GDP on health
 - Medical inflation
 - Ageing population
 - Increased longevity
- Cross-subsidies increasing
- Similar trends for Accident Compensation?
 - Retirement age increasing
 - Death is cheap!

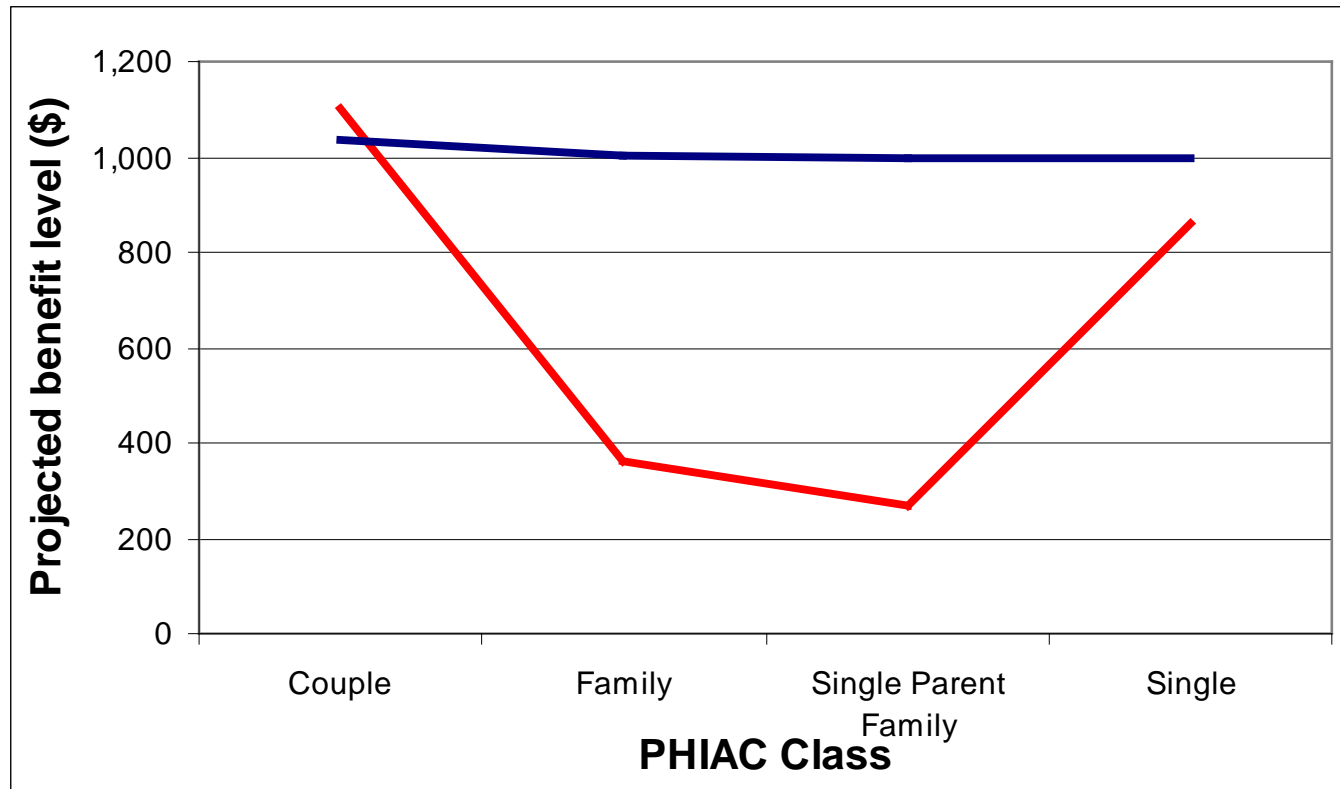


Using proxies





Using proxies





Marketing Implications

- Understanding of profitable segments
 - Rate using proxies
- Marketing initiatives & product design
 - Target particular segments
 - Attract more profitable segments
- Greater equity for mutuals



Summary

- Age is very significant
 - Captured by risk equalisation (hospital only)
- Gender and other factors also significant
- Cross-subsidies may not be sustainable
- Potential for further investigation into interactions



You know you've reached
middle age when a doctor, not
a policeman, tells you to slow
down.

(Anon)

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Questions