UNDERSTANDING THE DRIVERS OF HOSPITAL EXPENDITURE

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PRESENTATION TO ESRI POLICY CONFERENCE

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BACKGROUND

- ESRI/DoH Research Programme in Healthcare Reform, 2014
- The broad objective
  - to apply economic analysis to explore issues in relation to health services, health spending and population health, to inform the development of health policy and the Government's healthcare reform agenda
- Model development began in 2015
  - Demand (Wren, et al. 2017)
  - Capacity (Keegan, et al. 2018)
  - Expenditure (Keegan et al. 2020; Brick & Keegan, 2020; Wren & Fitzpatrick, 2020)

OVERVIEW

- Hippocrates is a macro-simulation model
  - Age and sex activity profiles
  - Cost profiles
  - Project activity and cost ⟶ expenditure
- To do this we need an understanding of the drivers of activity (demand) and cost
- This presentation will provide an overview of these drivers and how they are incorporated into Hippocrates
- And how we adjust for COVID-19 in the short and medium-term

WHAT DRIVES HEALTHCARE EXPENDITURE?

DRIVERS OF HEALTHCARE EXPENDITURE

- Demographic
  - Population size
  - Population age structure
  - Relationship of health to ageing
- Non-Demographic
  - Income
  - Relative prices
  - Technology
  - Policy

COVID-19

- COVID over the medium-term
  - Impact on demographics
  - Impact on cost drivers
  - Impact on waiting lists

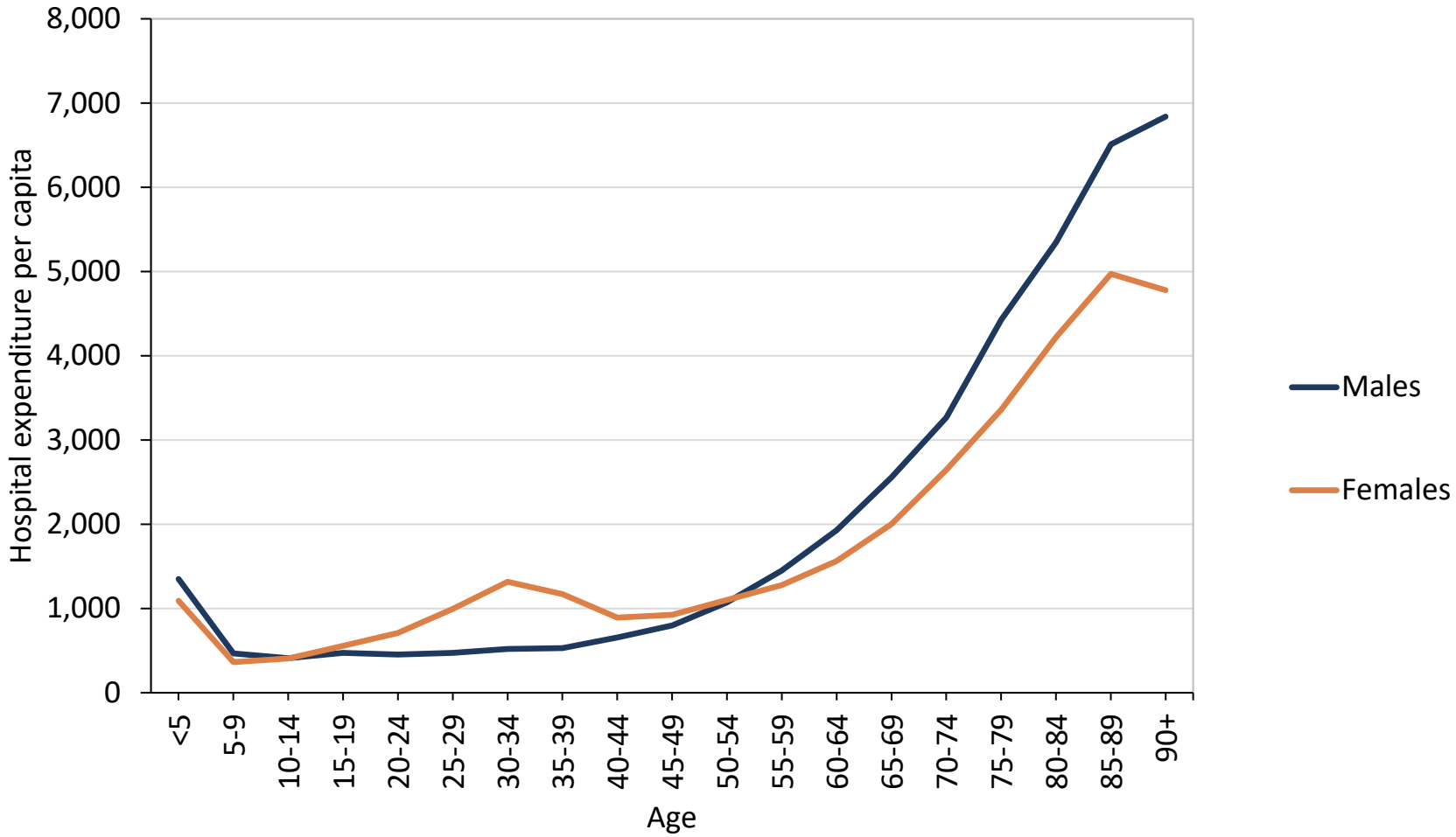
- COVID in the short-term
  - Expenditure shocks
  - Our modelling remains robust

POPULATION GROWTH AND AGEING

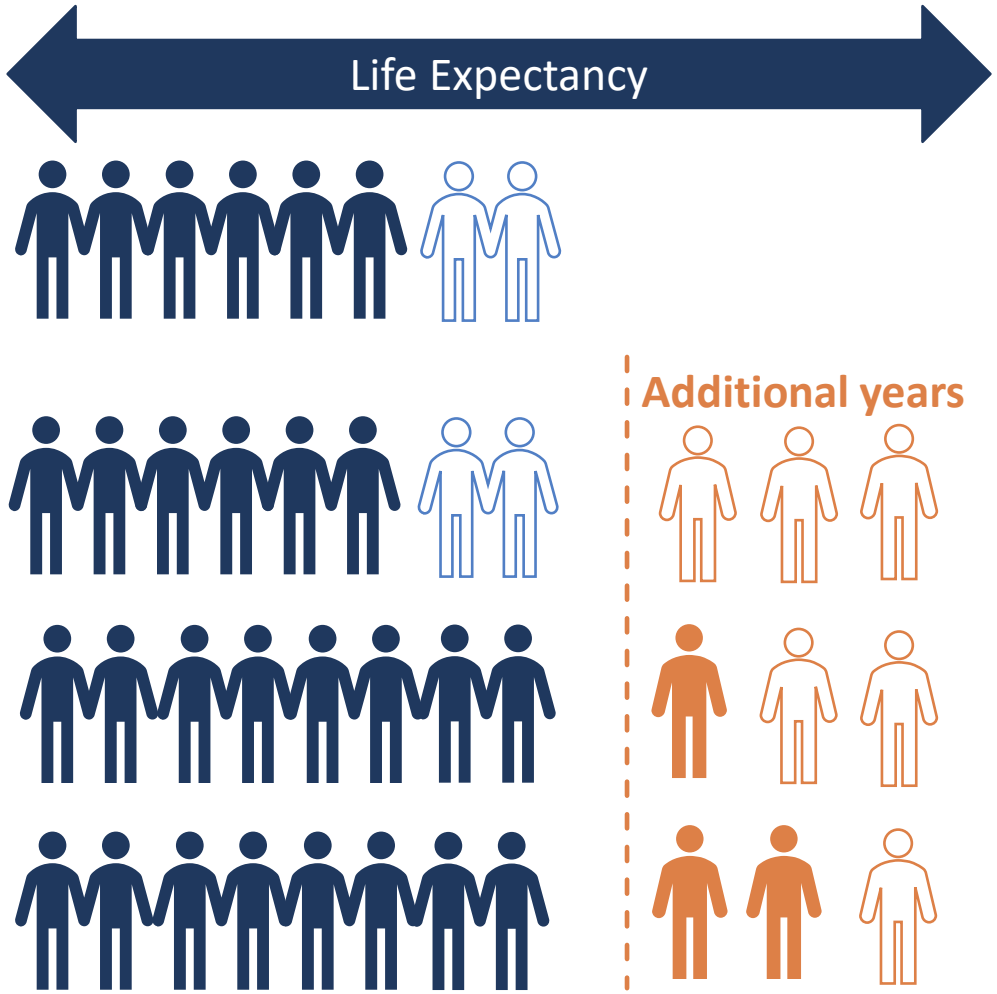
- Demand for healthcare depends on number of people in need of care:
  - Size of population
  - Health status of the population
    - Linked to age and sex structure
  - Older individuals, particularly, often require more care
  - Age and sex-related expenditure curves

POPULATION GROWTH AND AGEING

- Gross public acute hospital expenditure in Ireland, 2018



HEALTHY AGEING



Expansion of Morbidity –
Additional years spent in bad health

Dynamic Equilibrium –
Number of years in bad health remains fixed

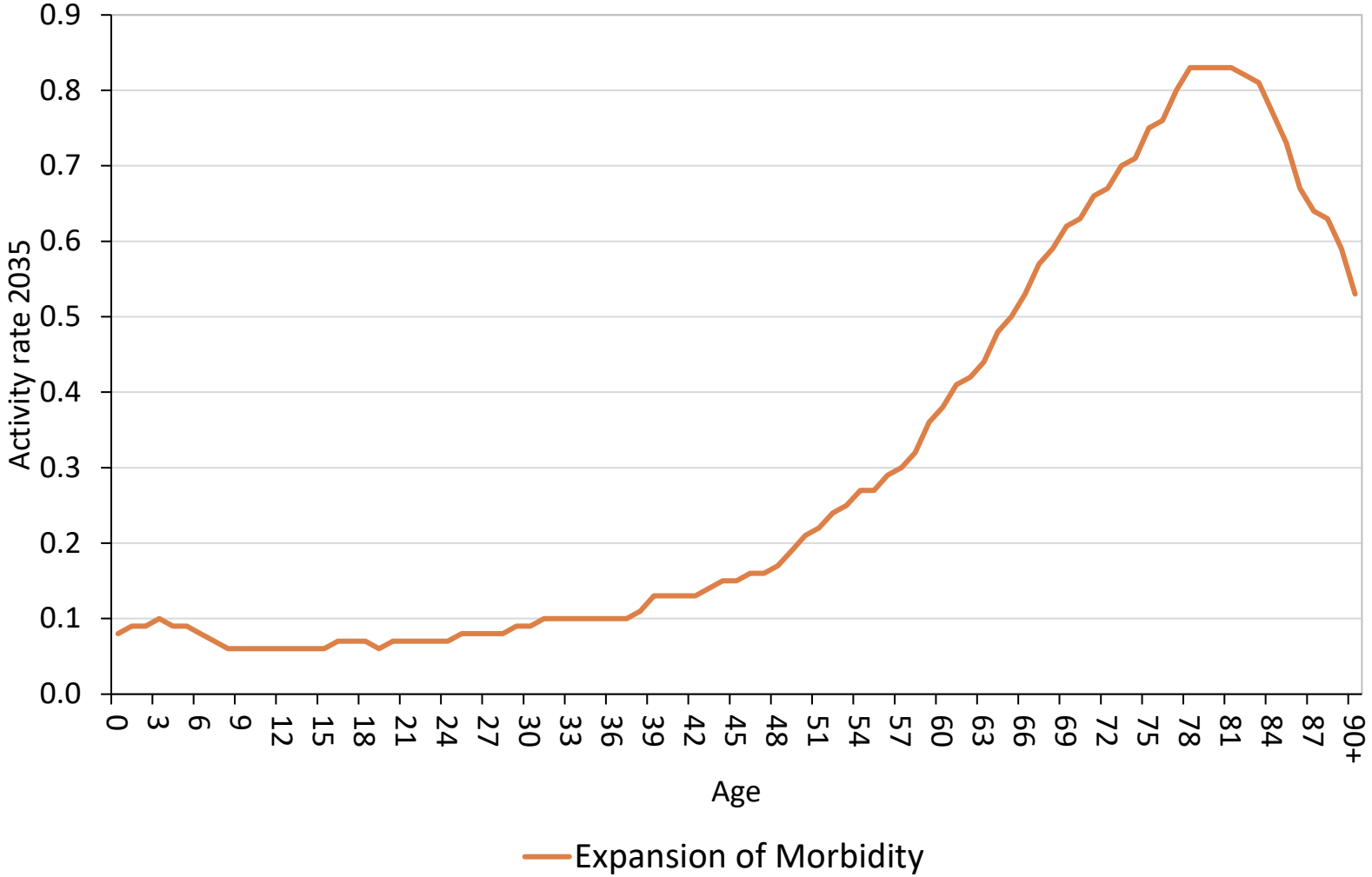
Compression of Morbidity–
Number of years in bad health reduces

Pessimistic

Optimistic

Moderate Healthy Ageing – between Expansion of Morbidity and Dynamic Equilibrium

MODELLING HEALTHY AGEING



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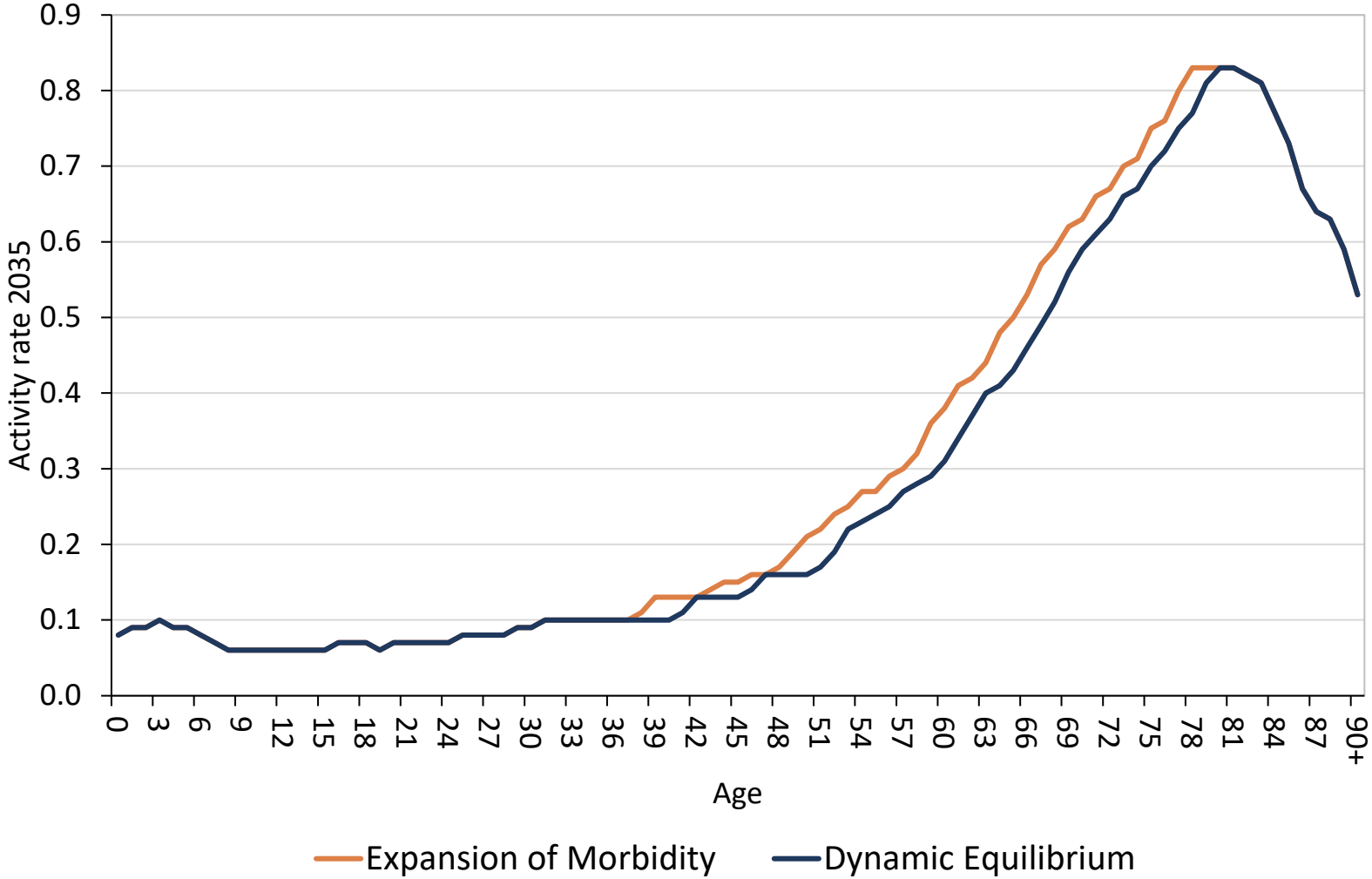
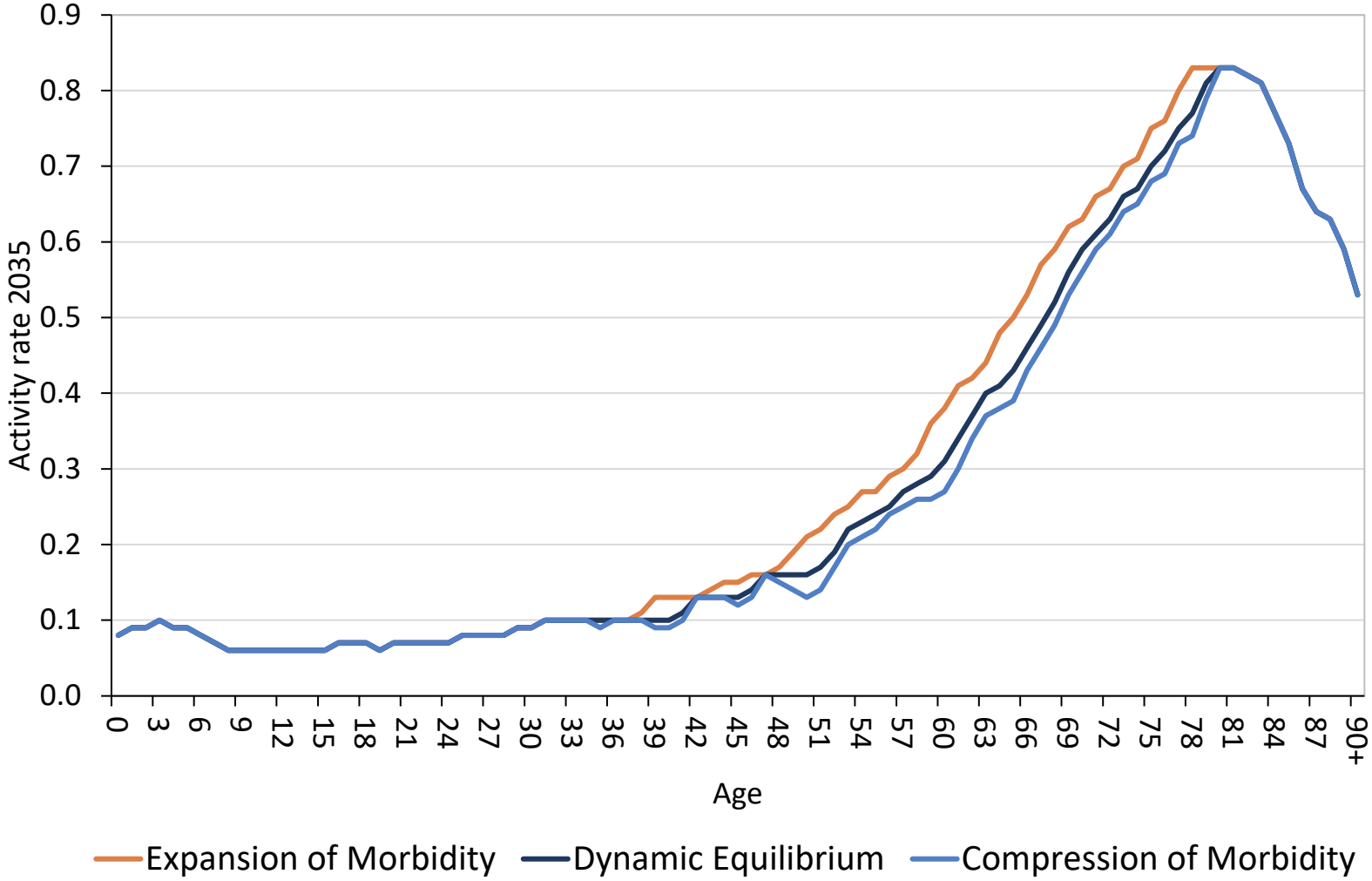


MODELLING HEALTHY AGEING



NON-DEMOGRAPHIC - BAUMOL'S COST DISEASE

- HCE prices tend to outstrip other prices – why?
- Productivity differentials between sectors matter (Baumol)

- Ireland's apparent high HCE driven by prices (Wren & Fitzpatrick, 2020)
- Pay costs linked to government sector earnings – tied to wages in the wider economy as we recover from COVID

NON DEMOGRAPHIC – TECHNOLOGY

- Technological progress can happen in a number of ways
- Positive on HCE
- May impact on both demand and cost
- Can be hard to estimate a ‘technology effect’
- Residual approach is common
  - E.g. Dybczak and Przywara (2010) estimate the extra impact of tech on top of demographic and income effects amounts to 2% per year growth in HCE across EU countries

COST - TECHNOLOGY

- We explicitly model a technological effect through channelling its impact on projected hospital drug costs (Charlesworth et al, 2018)
- Delivery of new innovative, technologically-advanced, drugs will impact hospital costs disproportionately (e.g. cancer care)

	Acute Expenditure ('000)						Unit Cost
					2015-2018		2015-2018
	2015	2016	2017	2018	Percentage change	Average annual percentage change	Average annual percentage change
Drugs and medicines	297,883	324,463	335,545	357,070	19.9	6.2	5.2
Other non-pay	980,132	1,001,187	1,063,598	1,109,119	13.2	4.2	3.2

Source: HPO Specialty costing

WHAT ABOUT POLICY CONSIDERATIONS?

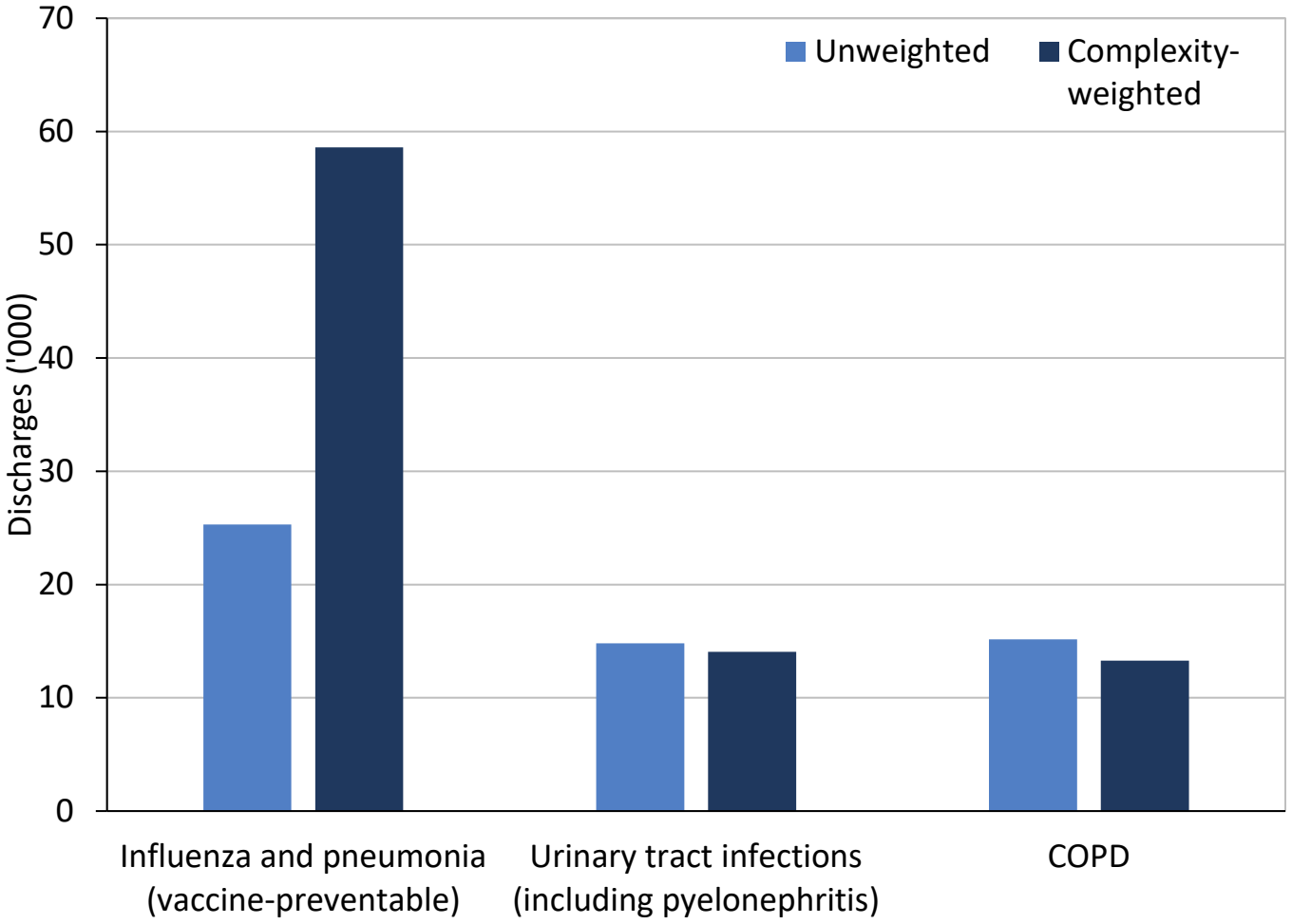
POLICY – WAITING LIST MANAGEMENT

- Shortages in acute care capacity have contributed to larger and longer waiting lists for public hospital treatment
- Exacerbated by COVID-19
- We examine the expenditure implications of addressing these waiting list issues (Findlay, 2017)
- Two dimensions
  - 1) How much once-off additional activity to reduce current backlogs?
  - 2) How much recurring additional activity to maintain lower waiting times?
- Incorporate information on numbers waiting for care as of October 2020

MODELS OF CARE

- Key recommendation of Sláintecare is to shift care out of hospitals through better primary care delivery
- If primary care improves what impact on hospital demand?
- Not exactly clear! (Kaestner & Lasso, 2015; Nolan, 2011; Ma & Nolan, 2016; Walsh et al, 2019).
- However, internationally, better primary care is associated with fewer avoidable hospitalisations (Gibson et al. 2013; Rosano et al. 2013; van Leonen, 2014)
- Conditions for which good primary/community care can prevent the need for hospitalisations
  - Vaccine-preventable influenza and pneumonia; Urinary tract infections, COPD
- We can reduce rates of avoidable hospitalisation under assumed improvements in primary care

POLICY- AVOIDABLE HOSPITALISATIONS



- In 2018 accounted for
  - 70% of all complexity-weighted avoidable discharges
  - 612,176 bed days
  - €292m – excluding emergency department cost

SUMMARY

- Demographic and non-demographic factors are likely to drive hospital expenditure
  - Population growth and ageing, healthy ageing
  - Baumol, technology, policy
- We adjust for COVID-19 in the short and medium-term
- Next, modelling demographic and macroeconomic scenarios