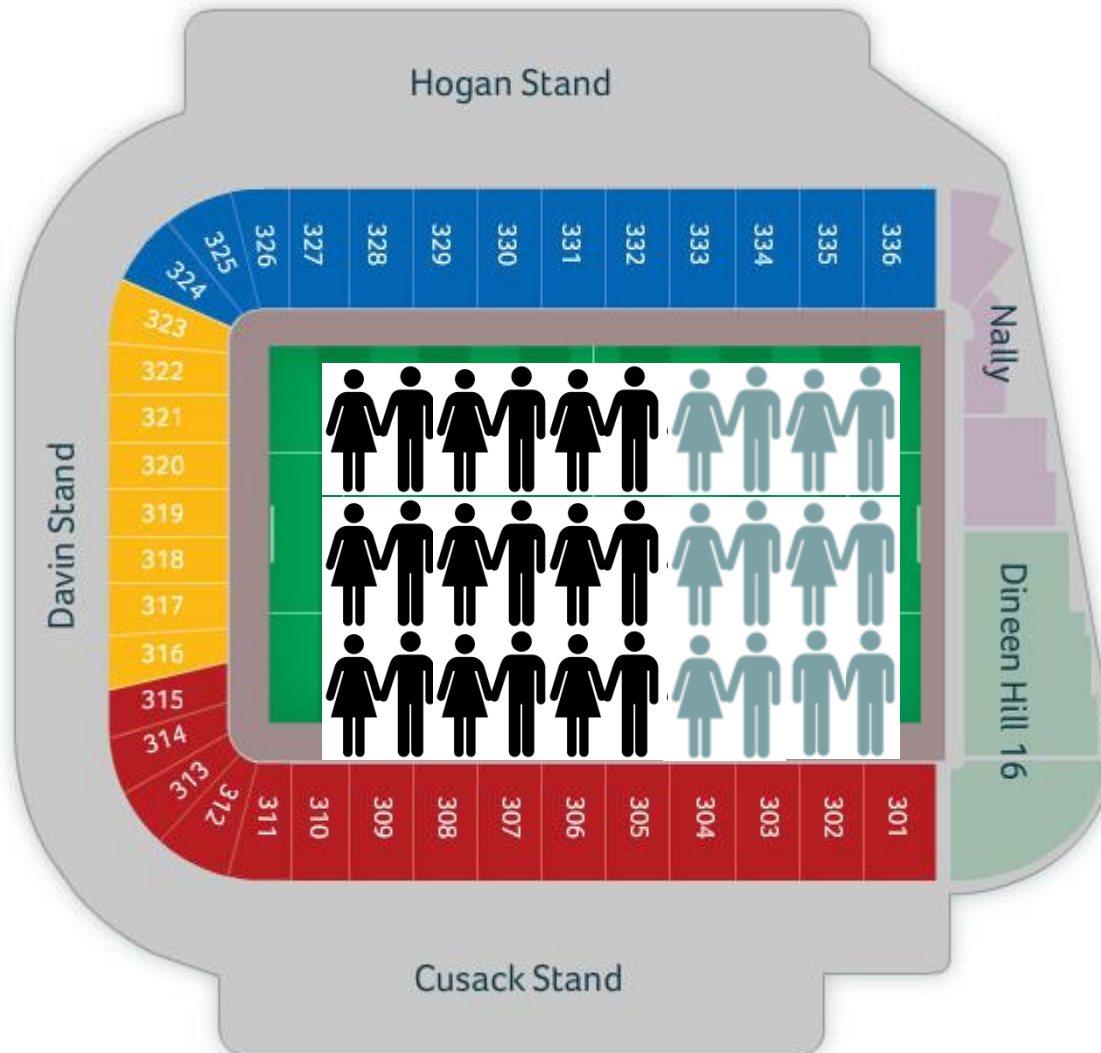


# Projecting productivity losses due to premature mortality from cancer 2010 - 2030

Alison Pearce<sup>1</sup>, Cathy Bradley<sup>2</sup>, Paul Hanly<sup>3</sup>,  
Ciaran O'Neill<sup>4</sup>, Linda Sharp<sup>1</sup>

*<sup>1</sup>National Cancer Registry, <sup>2</sup>Virginia Commonwealth University, <sup>3</sup>National College of Ireland, <sup>4</sup>National University of Ireland Galway*

# Cancer in Ireland



Annual  
average of  
29,750  
cancer  
cases  
diagnosed  
in Ireland  
each year<sup>1</sup>

# Aim

- Estimate national productivity losses associated with premature mortality from cancer in 2010, and project these until 2030



- Explore the impact of assumptions within the model on the estimates of productivity loss

# Methods & assumptions

## Human Capital Approach<sup>2</sup>

### Assumptions:

Retirement age  
Caring roles  
Mortality rates

### Calculate

Projected years of  
life lost (to life  
expectancy)

### Multiplied by

Age and gender  
specific gross  
earnings

### Adjust for:

Discounting (5%)  
Wage growth (1.7%)  
Workforce  
participation &  
unemployment



# Data sources

NCRI

Age-specific cancer mortality<sup>3</sup>

ESRI

Labour force projections<sup>4</sup> & wage growth projections<sup>5</sup>

CSO

- Life tables<sup>6</sup> & life expectancy projections<sup>7</sup>
- Population projections<sup>7</sup>
- Earnings by age & sex<sup>8</sup>
- Workforce participation rates<sup>9</sup> & projections<sup>7</sup>
- Caring rates<sup>10</sup>

# Results

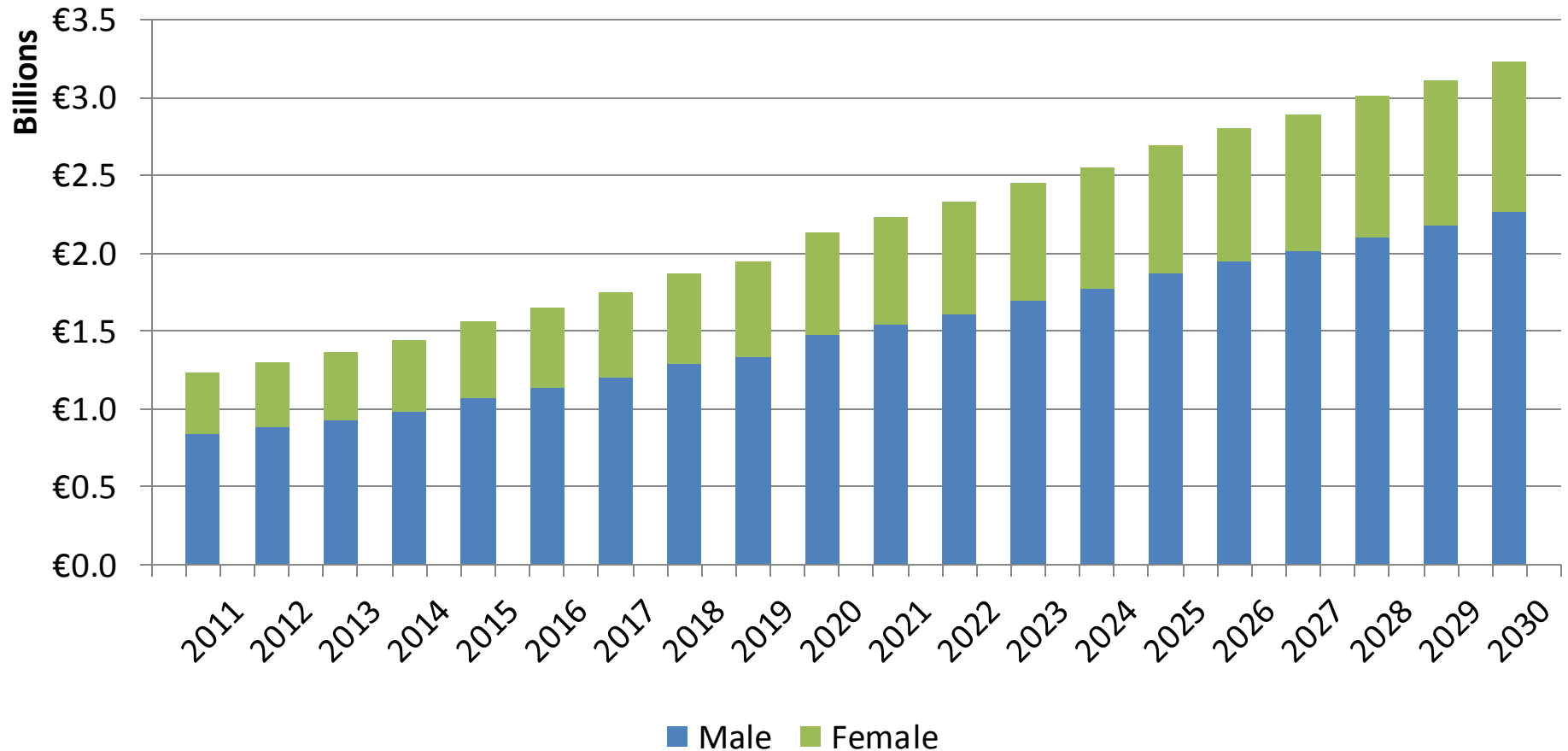
Total and average productivity lost due to premature cancer-related mortality:

| Year                | Total productivity lost | Productivity lost per cancer death |
|---------------------|-------------------------|------------------------------------|
| 2011                | €1,228,458,786          | €146,511                           |
| 2030                | €3,105,747,800          | €217,097                           |
| <b>2011 to 2030</b> | <b>€43,525,833,792</b>  | <b>€188,325</b>                    |

Total 2011 losses are 0.77% of GDP<sup>11</sup>

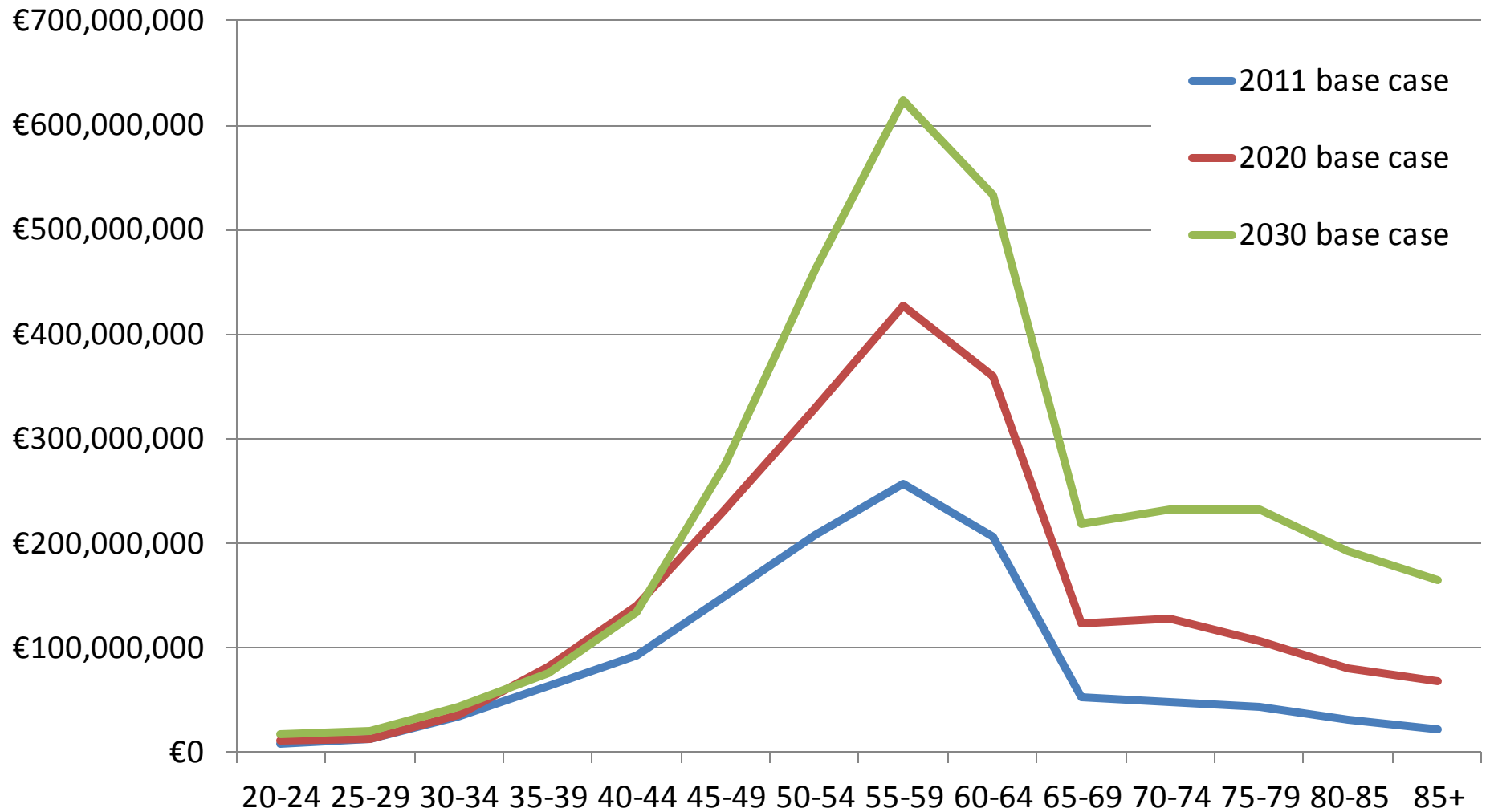
# Results – by gender

## Total PVLE for deaths from all cancer 2010 - 2030



# Results – by age

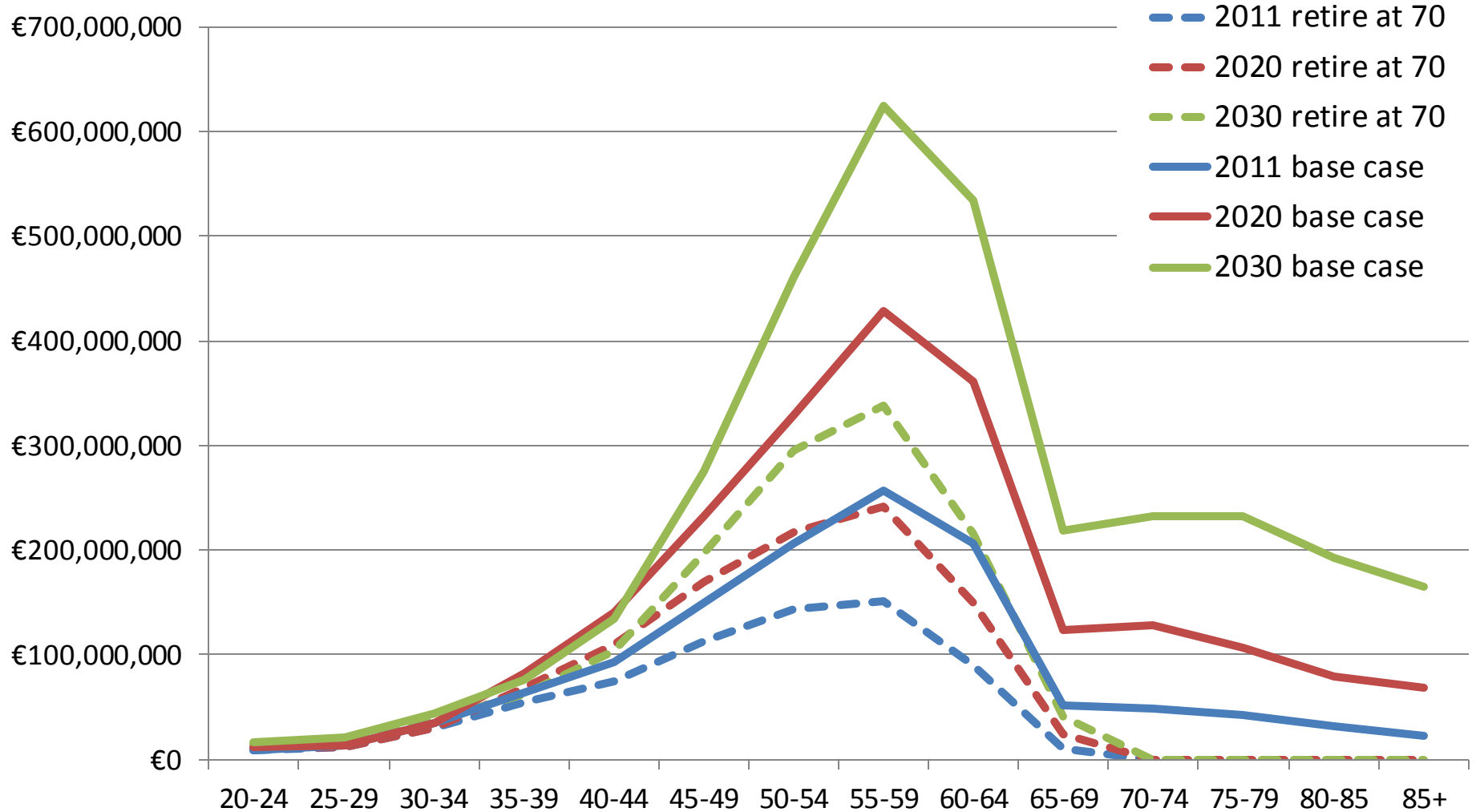
## Total PVLE for deaths from all cancer 2011 - 2030





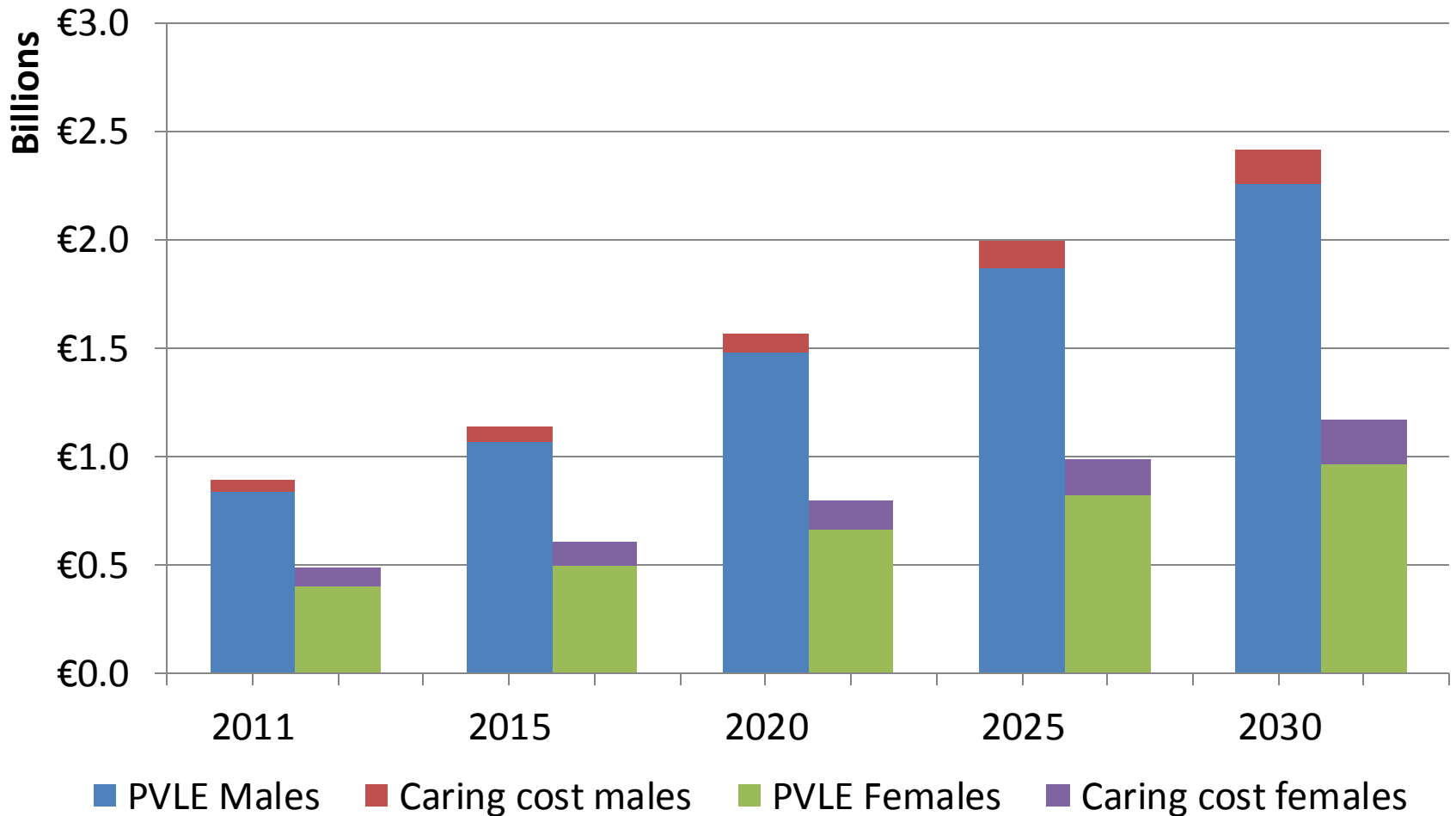
# Assumption - retirement age

**Total PVLE for deaths from all cancer 2011 - 2030**



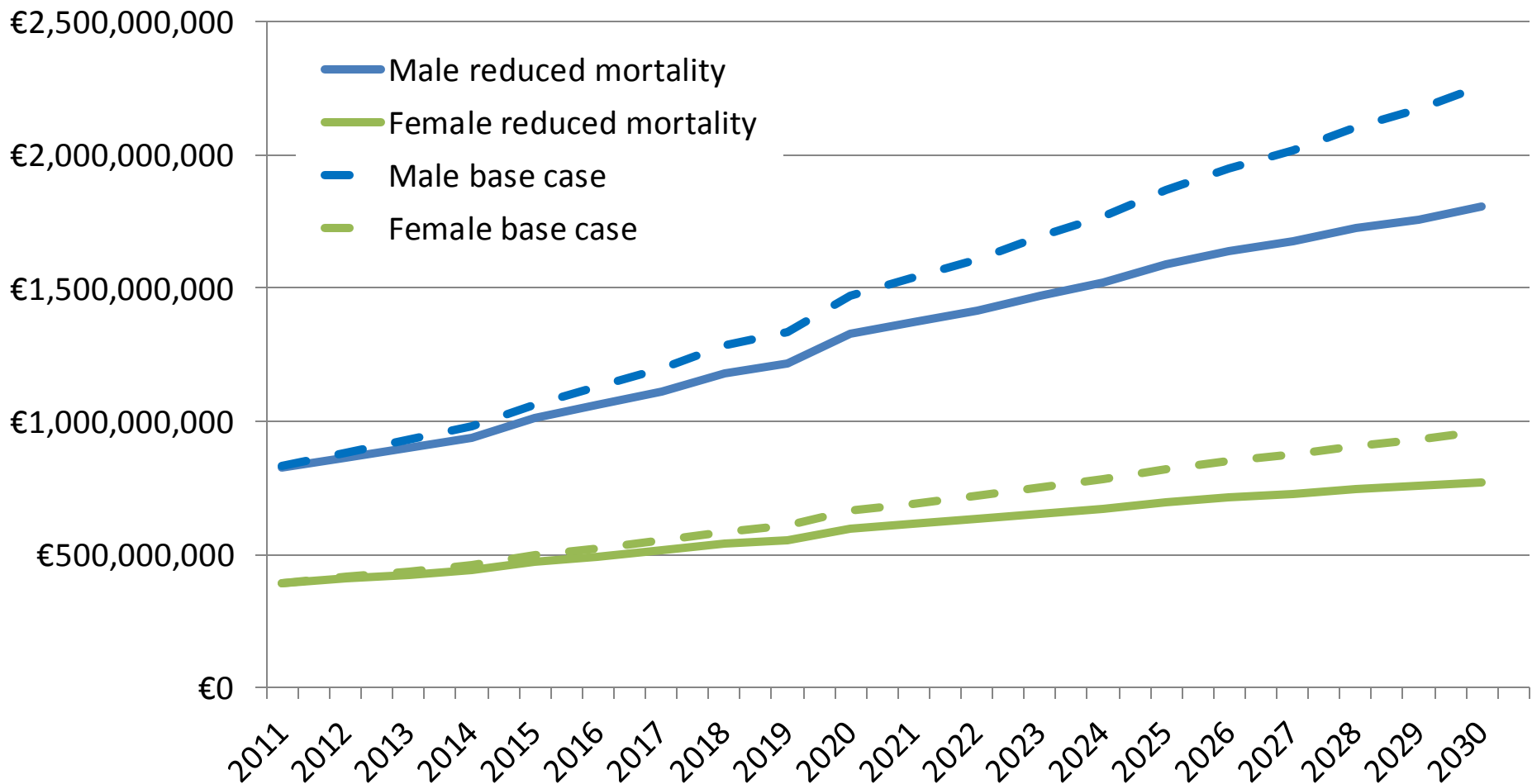
# Assumption - household production

## Total PVLE plus value of caring for deaths from all cancer



# Assumption - future mortality

## Total PVLE for deaths from all cancer 2011 - 2030



# Comparisons to literature

- Methods based on Bradley<sup>12</sup> (2008, US)
  - Data and assumptions in Ireland are different
  - Overall results are roughly similar, but different assumptions have different impacts
- Current year estimates previously done by Hanly<sup>13</sup> (2013, Ireland)
  - Methods and data sources roughly similar, but assumptions are different
  - Estimates are higher than Hanly overall but lower per death

# Next steps

Further sensitivity  
analysis:  
discount rate, wage  
growth & household  
production

Investigate  
similarities &  
differences with  
extant literature

Repeat analysis for  
top 20 cancers

# Implications

- Quantifying the costs of lost productivity due to cancer mortality allows us to:
  - better understand the factors that drive these costs,
  - provide evidence to policy makers of cancer control and value,
  - advise where initiatives to reduce these costs would best be targeted,
  - use projections to assist with planning for the future.

# Conclusions

- Productivity losses due to cancer are significant
- More work is needed within this analysis to explore different assumptions and cancer sites
- Final results will provide evidence of costs and cost drivers to assist with policy and planning for the future.

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More information:

- [a.pearce@ncri.ie](mailto:a.pearce@ncri.ie) @IrishCancerReg
- [www.alisonpearce.net](http://www.alisonpearce.net) @aliepea



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