

A New Estimation of Worklife Expectancy for Loss of Future Earnings: Redefining Disability and Distributional Results

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What is Life Worth? A Transatlantic Dialogue on Compensation

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Centre for Actuarial Compensation and Valuation of Life (CAVOL)
School for Business and Society
University of York

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Outline

1. A court-case example
2. UK framework
3. Data
4. Methodology and outputs
5. Example compensation calculation
6. The Impact?

1. A court-case example

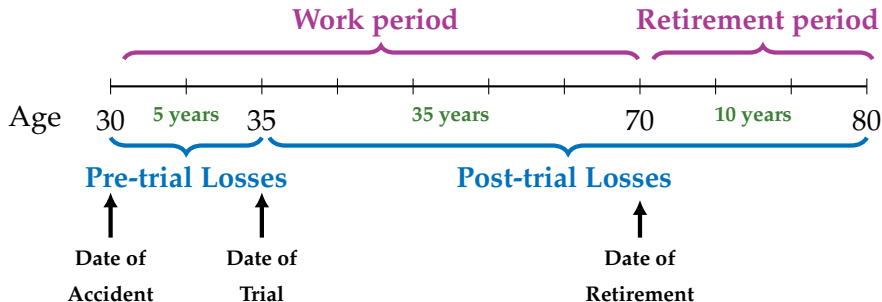
1.1. Case Details and Compensation

*A woman with **mid-level qualifications** (two A levels) was working in a full-time administrative role on a **net salary** of **£40,000** at the time of injury. She suffered some ongoing physical impairment following a **negligent medical procedure**. At the time of settlement, she is **35 years old**. She lost her job and the need for additional self-care precludes full-time employment. Her **potential future net salary** has been determined as **£20,000** at settlement.*

- **Compensation** for personal injury or death is a **legal matter**—but the **calculations** rely heavily on **actuarial methods**.
- In the context of personal injury and clinical negligence, compensation refers to the **monetary award** given to an injured individual, intended to **alleviate the financial impact** of their injury as fully as possible.

2. UK Framework

2.1. A Schematic Representation of Compensation Calculation



- **Future:** contingencies such as **mortality**, **work life expectancy**, **earning growth**, **discount rates**, etc.
- **Ogden Tables** (Government Actuary's Department)
- **Multiplier-Multiplicand** method

$$\underbrace{\text{Estimated Annual Loss}}_{\text{multiplicand}} \times \underbrace{\text{Estimated Number of Years}}_{\text{multiplier}}$$

2.2. Funders of the Research

With sincere thanks for their support.

- Institute and Faculty of Actuaries (IFoA)
- Personal Injury Bar Association (PIBA)
- Professional Negligence Bar Association (PNBA)
- Association of Personal Injury Lawyers (APIL)
- Association of British Insurers (ABI)
- Society of Clinical Negligence Lawyers (SCIL)
- Forum of Complex Injury Solicitors (FOCIS)
- AccessAble
- Anthony Gold Solicitors
- Bevan Brittan LLP
- Capsticks Solicitors LLP
- Chase de Vere
- Cloisters
- DAC Beachcroft LLP
- Digby Brown LLP
- Evelyn Partners
- Freeths LLP
- Hill Dickinson
- Irwin Mitchell LLP
- Keoghs LLP
- Leigh Day
- Osbornes
- Paladin Group Ltd
- Personal Financial Planning
- Stewarts Law LLP
- William Chapman
- William Latimer-Sayer
- 12 King's Bench Walk
- 1 Crown Office Row
- 7 Barrister's Chambers
- 39 Essex Chambers

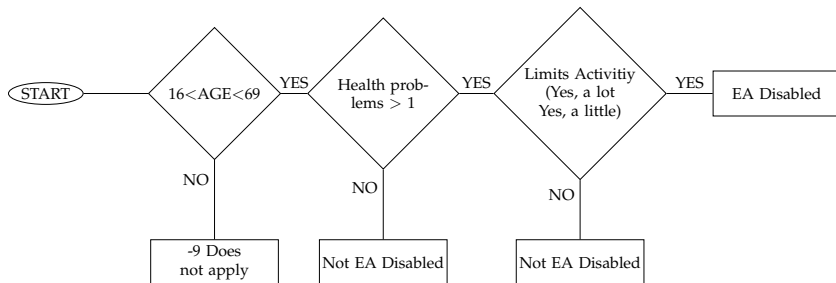
2.3. Background: Evidential Base

- Extended **working-age population** - (16-69)
- More detailed definition of disability - **"limited a little"** and **"limited a lot"**.
- More **recent Labour Force Survey (LFS)** data (2015-2020) compared to (1998-2003).
- Notable increase in reported **disability prevalence**:

Year	Percentage
1998	14.5%
2020	20.2%
2024	24.4%

- The increase in reported disability is more likely to reflect **behavioural, cultural, and social changes** instead of functional.

2.3. Current Disability Status



LFS classification algorithm to determine current disability status for Ogden analyses.

2.3. Background: Methodological Development

- Offering an approach to the **treatment of uncertainty**
- From a **point estimate** to a **prediction interval**
- **Distributions** of the *RFs* under the EA definition.

3. Data

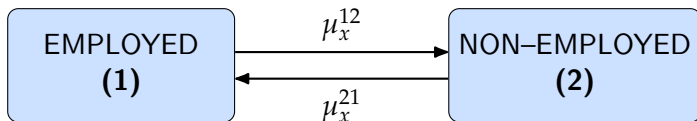
3.1. Longitudinal Labour Force Survey (LFS)

- LFS quarterly data (2015–2020), 20 quarterly datasets.
- 71,363 working-age respondents (age 16–69).
- Respondents observed over 5 consecutive quarters.
- Employment status categorised into:
 - Employed
 - Non-employed (unemployed and inactive).
- Disability status: EA-disabled vs non-EA-disabled.
- Education levels grouped into Level 1, 2, and 3.

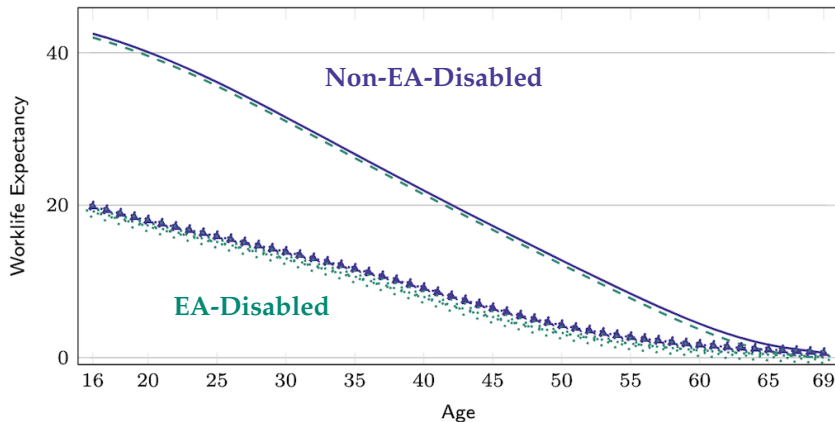
4. Methodology

4.1. 2-State Markov Model

- Follows the dynamic labour market modelling framework of Butt et al. (2008).
- Estimates expected future time in employment — **Worklife Expectancy (WLE)**.
- Uses a **2-state and 4-state continuous-time Markov model**:
- Built from longitudinal LFS data (2015–2020).

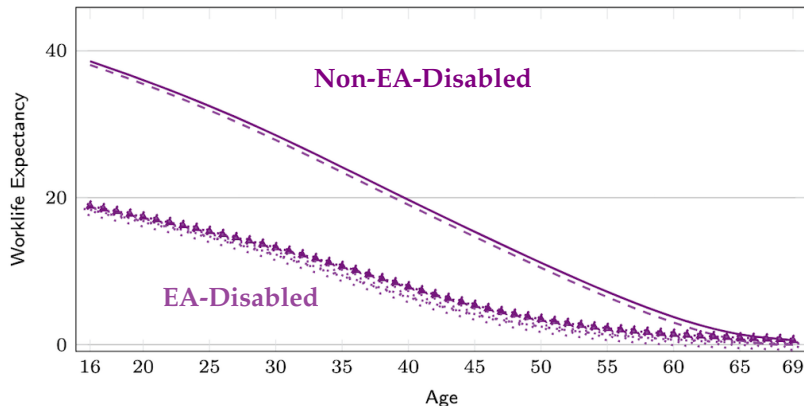


4.2. WLE – EA vs Non-EA Disabled Males



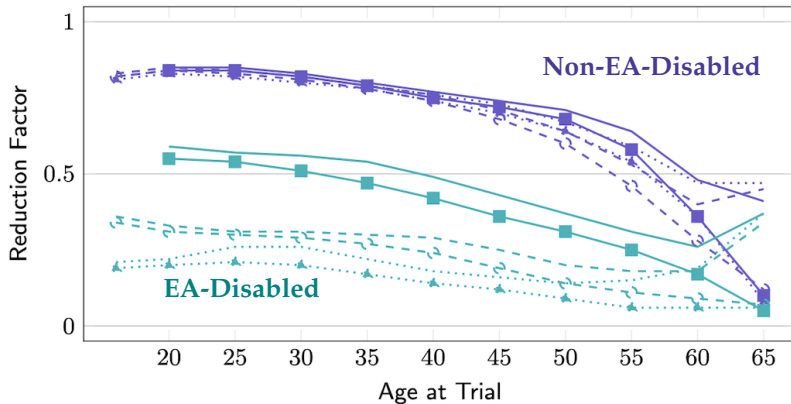
Worklife expectancies to pension age 70 conditional on being in the employed state (solid curves) and non-employed state (dashed/dotted curves).

4.2. WLE – EA vs Non-EA Disabled Females

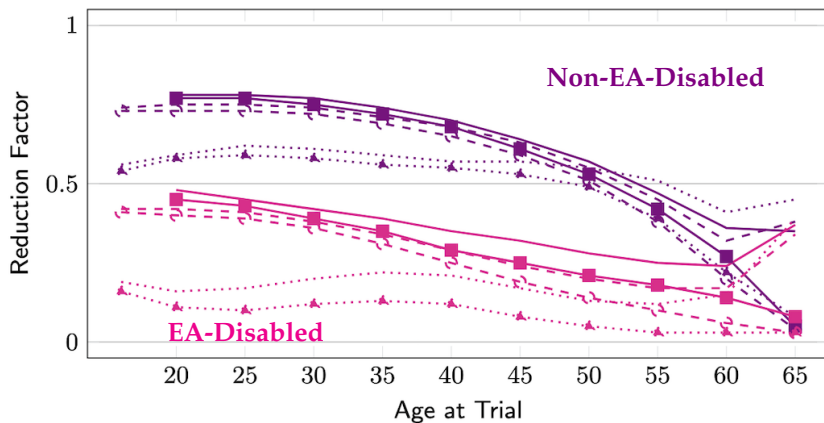


Worklife expectancies to pension age 70 conditional on being in the employed state (solid curves) and non-employed state (dashed/dotted curves).

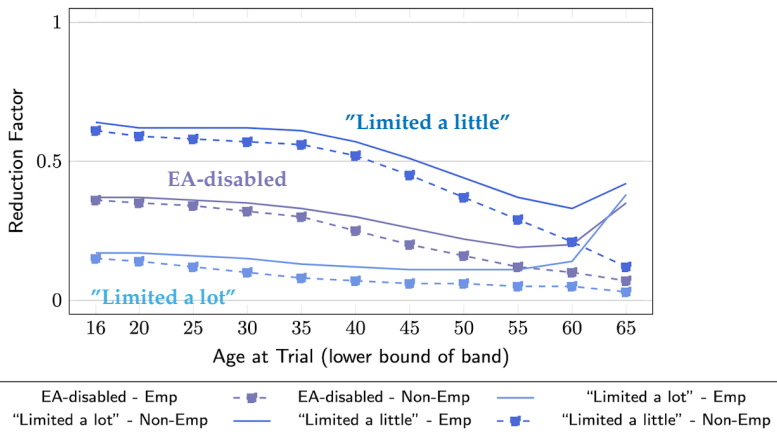
4.3. Reduction Factors for Males



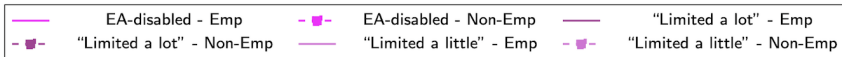
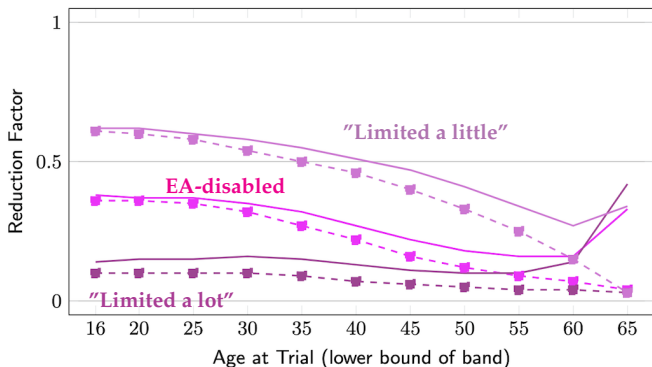
4.3. Reduction Factors for Females



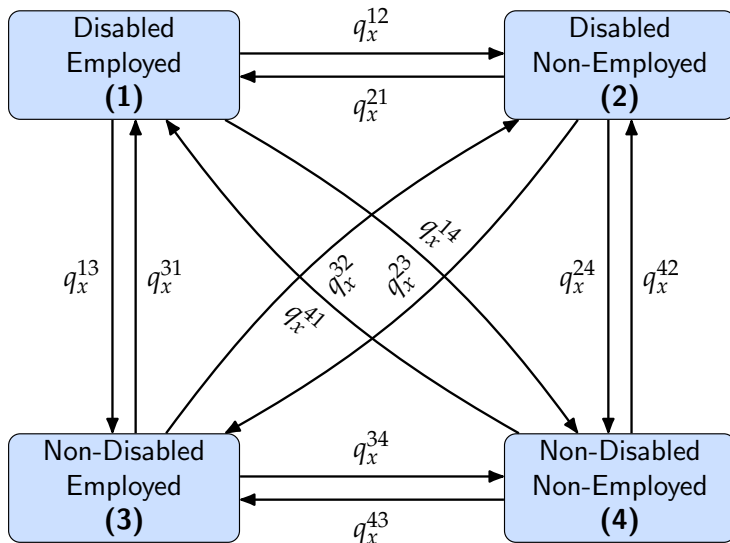
4.4. EA-Disabled vs "Limited a lot" vs "Limited a little" (Males)



4.4. EA-Disabled vs "Limited a lot" vs "Limited a little" (Females)



5.3. 4-State Markov Model



6. The Impact?

6. The *Impact*?

- *William Latimer-Sayer KC, the Chair of the Ogden Working Party*

... The impact and reach is very significant. The valuation of nearly all future loss of earnings claims in the UK will be improved by these revised estimates. The data is relied upon by everyone involved in the assessment of future loss of earnings in personal injury claims, including lawyers, insurers, judges, and institutions such as the NHS, MoJ, and MoD.

Questions?

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