

# Modelling the Effect of Social Mobility on Limiting Long-term Illness

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A change in a person's social class may have a number of effects on the person themselves or the way they live their life. Hence researchers have considered the effect of social mobility in relation to varied outcomes such as the risk of cancer [3], consumption of alcohol [1] and attitudes towards ethnic minorities [5].

An intuitive model for the effect of social mobility is the diagonal reference model proposed by Sobel [4]. In this model, the effect for individuals moving from origin class  $i$  to destination class  $j$  is defined as a weighted sum of the  $i$ 'th and  $j$ 'th diagonal effects:

$$w_1\gamma_i + (1 - w_1)\gamma_j,$$

where a diagonal effect is the effect for stable individuals in a given class. This model has predominantly been applied to the analysis of political and social attitudes, measured on a scale that can be assumed to follow a normal distribution [e.g. 5, 2]. In this case the diagonal reference model can be estimated using nonlinear least squares, for example with `nls`.

In this talk we use the diagonal reference model to investigate the effect of social mobility on limiting long-term illness, using data from the UK's Office of National Statistics Longitudinal Study. In this case the outcome is binary, hence the model is an example of a generalized nonlinear model, which can be fitted in R using the `gnm` package [6].

## References

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