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# **An empirical analysis of the importance of controlling for unobserved heterogeneity when estimating the income-mortality gradient**

By [Adriaan Kalwij](#)

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## Abstract

**Background:** Statistical theory predicts that failing to control for unobserved heterogeneity in a Gompertz mortality risk model attenuates the estimated income-mortality gradient toward zero.

**Objective:** I assess the empirical importance of controlling for unobserved heterogeneity in a Gompertz mortality risk model when estimating the income-mortality gradient. The analysis is carried out using individual-level administrative data from the Netherlands over the period 1996-2012.

**Methods:** I estimate a Gompertz mortality risk model in which unobserved heterogeneity has a gamma distribution and left-truncation of life durations is explicitly taken into account.

**Results:** I find that, despite a strong and significant presence of unobserved heterogeneity in both the male and female samples, failure to control for unobserved heterogeneity yields only a small and insignificant attenuation bias in the negative income-mortality gradient.

**Conclusions:** The main finding, a small and insignificant attenuation bias in the negative income-mortality gradient when failing to control for unobserved heterogeneity, is positive news for the many empirical studies, whose estimations of the income-mortality gradient ignore unobserved heterogeneity.

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