

## Is safety a cause of cycling in numbers or an effect of increased cycle use?

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**Purpose:** The purpose of this paper is to present an analysis of the bidirectional relationship between cycling risk and cycling rates in the Safety in Numbers phenomena. The second part consists of a discussion about when, how and why each might influence the other and where the efforts should be focused on in different life-cycle stages of a cycling community. The proposition is that cycling safety improves with numbers but first numbers increase with safety.

**Design/methodology/approach:** The paper uses a variety of data sets to create cycling rates and cycling risk profiles for English cities. Linear and nonlinear relations are investigated and presented in various ways. Part two consists of a literature review and discussion on whether there is a tipping point in the relationship between cycling and risk ratios.

**Findings:** Regression functions from both perspectives reveal powerful bidirectional relationship between cycling risk and cycling rates. The effect seems to be stronger from the rates toward the risk but the strength differs for different categories of cities. However, there is a need for careful analysis and tailoring for each strategy, correlated with the level of risk and other factors such as cycling culture, infrastructure and funding opportunities.

**Practical implications:** The paper provides a tool for road safety strategists around the UK and abroad, offering an overview analysis and discussion points that policy makers and practitioners should be aware of before developing road safety or cycling strategies.

**Originality/value:** Among the first research papers to investigate SIN from a bidirectional perspective, the paper provides valuable insight, which can be used as a guide for organisations working in cycling or general road safety.