

Literary mood reflects the economic mood of past 10 years, study finds

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The frequency of words expressing misery and unhappiness in books reflects the economic conditions in the 10 years prior to the work's composition, according to researchers in Bristol and London.

The study, published today in *PLOS ONE*, found a strong [correlation](#) over most of the 20th century between a 'literary misery index' reflecting mood in English language books and a moving average of the previous decade of the annual US economic misery index (the sum of inflation and unemployment rates). The correlation increased when the researchers compared literary misery to an average of US and UK economy misery indices.

The researchers found that 'literary misery' correlates best with a moving average of the previous decade of 'economic misery' for the period 1929-2000.

Lead author of the study, Professor Alex Bentley of the University of Bristol, said: "When we looked at millions of books published in English every year and looked for a specific category of words denoting unhappiness, we found that those words in aggregate averaged the authors' economic experiences over the past decade. In other words, global economics is part of the shared emotional experience of the 20th century."

The researchers developed their literary index by looking at how frequently 'mood' words divided into six categories (anger, disgust, fear,

joy, sadness, surprise) were used through time in a database of more than five million digitised books provided by Google. From this, they created a 'literary misery index' which was effectively the relative abundance of sadness words minus the abundance of happiness words.

They found that some periods, such as the 1980s, were clearly marked by literary misery, others by relative joy. "It looked like Western economic history," noted Professor Bentley, "but just shifted forward by a decade."

Co-author, Dr Alberto Acerbi added: "Economic misery coincides with WW1 (1918), the aftermath of the Great Depression (1935) and the energy crisis (1975). But in each case, the literary response lags by about a decade, such that authors are averaging experiences over that decade."

Professor Bentley continued: "Perhaps this 'decade effect' reflects the gap between childhood when strong memories are formed, and early adulthood, when authors may begin writing books. Consider for example, the dramatic increase of literary misery in the 1980s, which follows the 'stagflation' of the 1970s. Children from this generation who became authors would have begun writing in the 1980s."

To check the robustness of the results, the researchers also analysed books written in German. Co-author Paul Ormerod, an economist in London, said: "We were still very cautious about spurious correlations at this point but then we found virtually the same results for German economic vs. literary misery.

"The results suggest quite clearly that, contrary to post-modern literary theory, literature serves a purpose. It informs people about the human condition, and the content adapts to the conditions of the time."

Dr Vasileios Lampos, a postdoctoral computer scientist from UCL, said:

"The best correlation window (10 to 11 years) is robust across our analysis. We confirmed it on various corpora, including books written in English and German, and with different tools for extracting emotional content from [books](#)."

More information: 'Books average previous decade of economic misery' by R. Alexander Bentley, Alberto Acerbi, Paul Ormerod and Vasileios Lampos in *PLOS ONE*.

Provided by University of Bristol

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