

Should we sample time series more frequently?

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A team of statisticians from the Universities of Bristol and Southampton and the Office for National Statistics have been chosen to present a prestigious Read (Discussion) Paper at a plenary session of the Royal Statistical Society's international conference in Manchester today (Tuesday, September 6).

The paper presents new research in the field of time series analysis and decision theory that helps decide whether it is worth sampling a time series more frequently.

Professor Guy Nason, from the Institute of Statistics in the School of Mathematics at the University of Bristol, said: "Statistics collected through time are known as time series - for example economic figures, such as Gross Domestic Product (GDP) or the rate of inflation that are released every quarter.

"Increasing the frequency of collection, such as moving to monthly statistics, always increases the amount of information available. However, the cost of more frequent collection can outweigh the value of the information obtained.

"Our research enables a rational analysis that sheds light on whether it is worth sampling more frequently. Although our initial area of application is in Official Statistics, our methods are applicable to the many situations where time series data are collected."

Dr Ben Powell, Research Associate, also from the Institute of Statistics at Bristol, added: "The heart of the new research is a method that enables the coherent fusion of multiple data sets collected at different rates, providing much more information than just either set in isolation."

Paul Smith, Associate Professor in Official Statistics at the Southampton Statistical Sciences Research Institute (S3RI), said: "This new methodology is useful when deciding whether to embark on a more rapid collection of statistical data or when evaluating whether past changes were worthwhile.

"The technique also has great potential in the fusion of data sets from multiple sources such as turnover information collected by the Office for National Statistics' monthly business survey and by monthly, quarterly and annual VAT returns to HM Revenue and Customs."

Read Papers are a long established tradition of the Royal Statistical Society which date back to the 1830s. They go through extensive peer review and then, if selected for reading and discussion, are presented at a meeting of the Society.

The main presentation is followed by responses from a proposer and seconder, followed by discussion contributions from the audience.

The paper and any subsequent discussion are then published together in the *Journal of the Royal Statistical Society*.

Professor Nason added: "It has been a pleasure to work together with colleagues from Southampton and the Office for National Statistics to develop these new techniques and we are delighted to have the opportunity to present our work as a Read Paper at the Royal Statistical Society's conference."

Provided by University of Bristol

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