

# Fraud Detection with Benford's Law

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## Abstract

Benford's Law describes how the digits in sets of numerical data should be distributed. When there is a significant deviation from Benford's Law in a data set it could indicate that the data has been manipulated or made up. This method has been increasingly popular in recent years for detecting fraud in different areas of interests, such as accounting, elections, scientific data, etc. The purpose of this study is to see if we can detect any fraud in some different areas and how well Benford's Law performs. Benford's Law was applied on basic simulations of common distributions, economic data on EU during the Greece government-debt crisis, and a simulation from a two candidate election model. This resulted in large deviations from Benford's Law when not expecting it and almost no deviation when it was expected. Hence we conclude that either the theory of Benford's Law is incomplete so that its appropriate use is still to a large extent unknown, or that the commonly used hypothesis tests are not optimal for Benford's Law and should be corrected or other tests should be developed for this purpose.

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