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Combining Benford's Law and Machine Learning to detect Money Laundering. An actual Spanish court case

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Highlights

- A new tool to detect money laundering criminals is proposed.
- Benford's Law and Machine Learning are combined to find patterns of money laundering.
- The tool is tested in the context of a real macro-case on money laundering.
- Additional suspicious companies are identified.

Abstract

Objectives

This paper is based on the analysis of the database of operations from a macro-case on money laundering orchestrated between a core company and a group of its suppliers, 26 of which had already been identified by the police as fraudulent companies. In the face of a well-founded suspicion that more companies have perpetrated criminal acts and in order to make better use of what are very limited police resources, we aim to construct a tool to detect money laundering criminals.

Methods

We combine Benford's Law and machine learning algorithms (logistic regression, decision trees, neural networks, and random forests) to find patterns of money laundering criminals in the context of a real Spanish court case.

Results

After mapping each supplier's set of accounting data into a 21-dimensional space using Benford's Law and applying machine learning algorithms, additional companies that could merit further scrutiny are flagged up.

Conclusions

A new tool to detect money laundering criminals is proposed in this paper. The tool is tested in the context of a real case.