Mining Government Data-sets for Detecting Suspicious Behavior

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Data Mining for Corruption Hunters
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Contents

Introduction

- This short presentation provides a few examples of successful mining of Government databases particularly relevant to developing countries.
- All examples are taken from Colombian databases.
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- Colombia has a mandatory competitive health insurance system.
- Payments are determined using information provided by HMOs.
- Potential problems: Risk of manipulation, misreport, errors, etc.
- Task: Design a system that helps the Ministry to detect all sorts of anomalous behavior.

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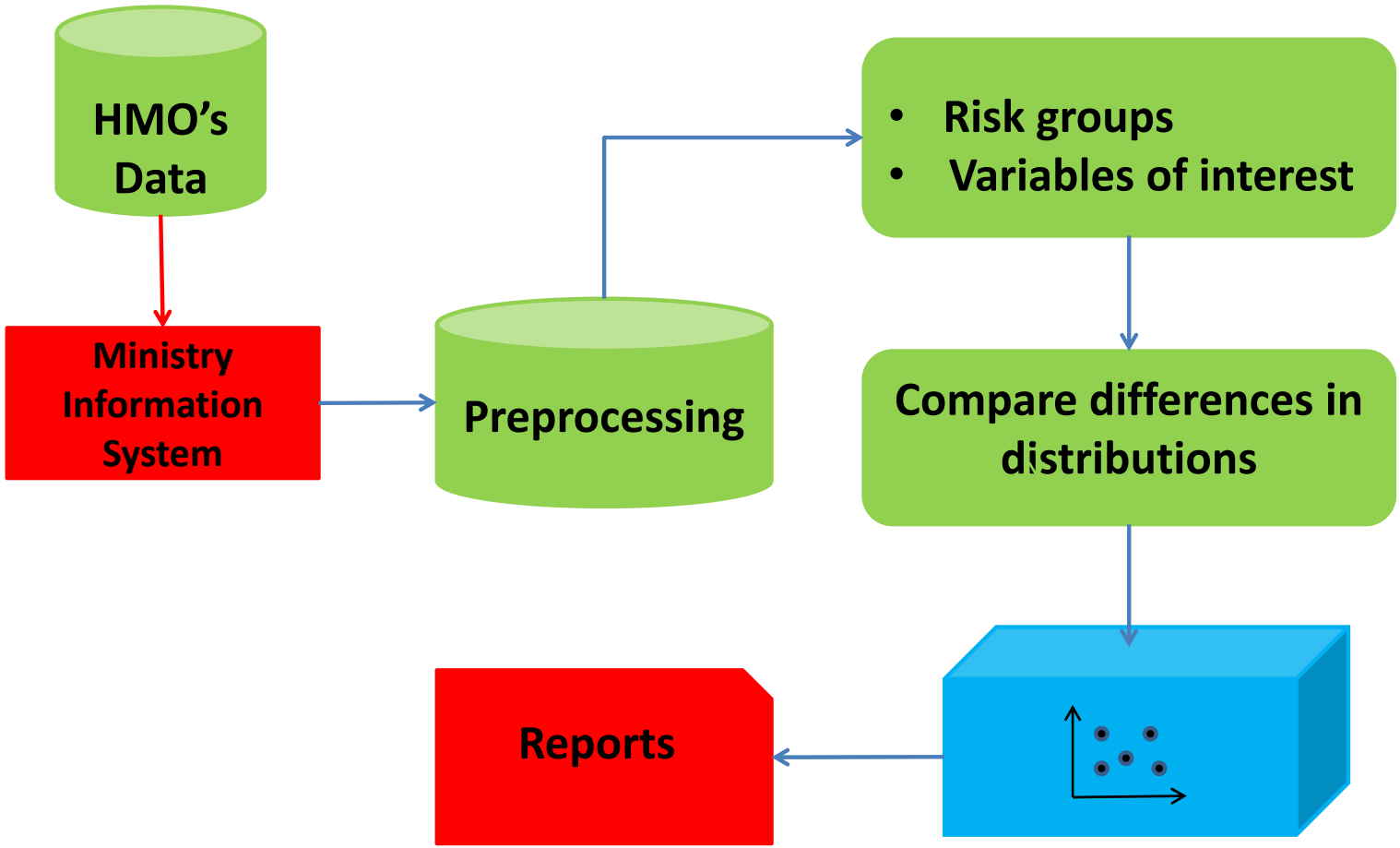

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Tax Evasion (work in progress)

- Problem: Detect likely cases of tax evasion.
- Methodology:
  - Use information reported by firms to construct a proxy of taxes for each person.
  - Using previous years and supervised learning models, construct the best predictor of actual paid taxes.
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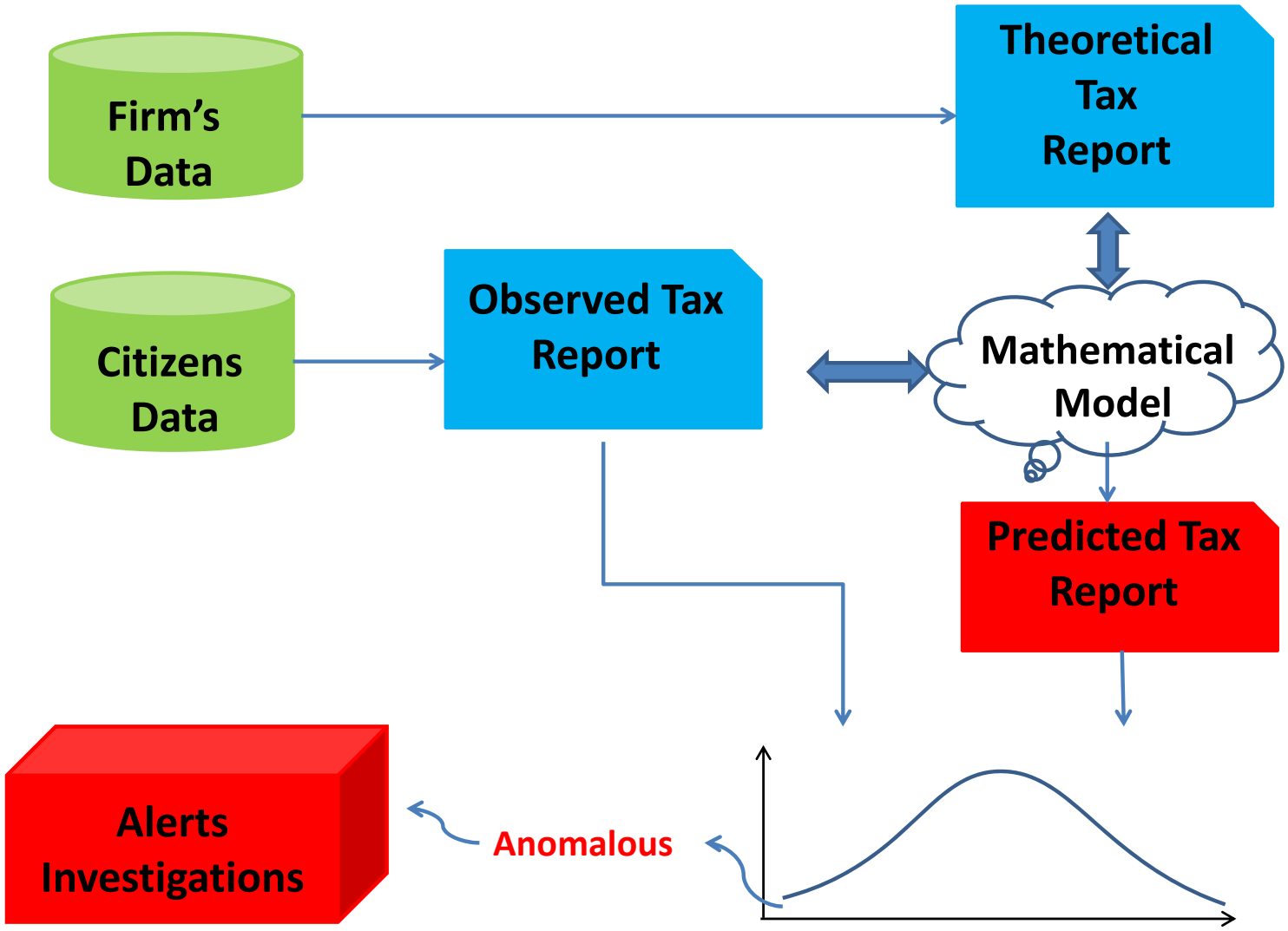
Firm's Data
Theoretical Tax Report
Citizens Data
Observed Tax Report
Mathematical Model
Predicted Tax Report
Alerts Investigations
Anomalous

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- Problem: Detect anomalous transactions that may be suspicious of money laundry.
- In principle we have access to most legal data sets in Colombia: Cars transactions, properties, foreign money exchange, financial transactions, taxes, etc.
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- How it works? You need:
  1. Data, storage capabilities and computational power.
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  3. Data scientist to run machine and/or statistical learning algorithms.
- This framework complements traditional investigation techniques:
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Thank you very much!

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