EUI DEPARTMENT OF LAW

Requirements for Tax XAI under Constitutional Principles and Human Rights

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Overview

- The problem: opaque (incl. non-explainable) AI in taxation
- Explanation as a matter of law
- Informational demands for the various stakeholders
- From legal requirements to technical requirements
- Future work. Empirical study.

The problem: Opaque AI in taxation

Tax authorities increasingly rely on AI for various tasks

- Internal procedures and information management
- Risk assessment and sense-making
- Automated decision-making?

Automation is somewhat unavoidable: complexity, lack of workers

Despite the potential of automation, there is the risk of opacity

- Legal certainty and contestation
- Discriminatory decision-making: Dutch benefits scandal
- Managing software complexity

How to avoid throwing the baby out with the bathwater?

Explanation as a matter of law

General constitutional principles

- Legal certainty: elements of tax need to be highly specified

- Fundamental taxpayers' rights, such as the right to contest

- Need for explanations is not always reflected in ordinary laws for AI

AI and human rights in Europe

- European Court of Human Rights (ECtHR) has decisions on ICT

- States refer to ECtHR at national level: SyRI, eKasa

- No explicit right to an explanation, but information is needed

Informational demands for various stakeholders

- Two levels of explanation
  - *Why* questions: System behaviour
    - Concerned with particular cases
    - Local post-hoc explanation
  - *What* questions: process
    - General patterns and mechanisms
    - Global post-hoc explanation can help make sense

- Fully automated decisions also depend on normative justification

Why-explanations	What-explanations
Taxpayers	Tax authorities
Tax authorities (-)	Oversight bodies
Courts	Courts (-)

Table 1: Consumers of explanation

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From legal requirements to technical requirements

- On the legal side: mapping the extent of explanation duties
- Need to translate stakeholder demands into design requirements
  - Kinds of information needed
  - Timing for disclosure
  - Level of detail for outputs
  - Technical complexity

- Designing systems for tax XAI
  - Definition of target problems: e.g. risk assessment
  - Selection of explanation techniques
  - Integrating reasoning models for justification?
- Next step: prototype
  - Data and case of application
  - Initial focus: post-hoc local explanation
  - Evaluating explanations' fit for purpose

Future work. Empirical study

- Overall plan: implement explanation pipeline
  - Model for tax application
  - Local post-hoc explanation model
- Main contributions
  - Evaluating explanation models in tax
  - Starting point for further exploration

- Lack of datasets
- Workaround
  - COMPAS dataset
    - Proxy for tax-oriented dataset
- **Novel dataset**
  - Buenos Aires tax authorities
  - Tax fraud detection
    - Various machine learning methods + XAI

Thank you!

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