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Regulatory Architectures for Disruptive Technologies:

The Case of the Credit Data Regime

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Research Problem

- Scoring systems are increasingly used in private and public decision making processes for governance purposes.

- In this way scoring – via big data collection, processing and application – determine winners and looser.

- They are forms of power, sometimes abusive and tyrannous power.

Main Assertions

Increase governance via regulatory triangulation of data-collection, data processing and data use.

Create distinct regulatory regimes to each of the three analytical stages.

The governance of Algorithms start before the actual demands on the algorithm and ends after it.

Research Question

How should we govern scoring processes ?

Research Questions

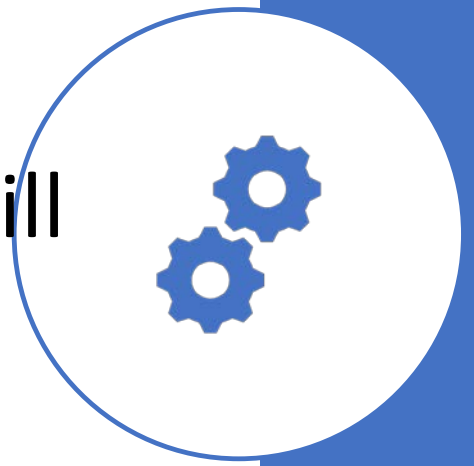
- How does scoring technology governance evolve in the case of financial scoring in the US ?
- How do algorithms and big data change the financial scoring regime in the US?
- What are the lessons that can be learned for the US regulatory response to financial scoring?

“The use of a numerical tool to rank order cases according to some real or perceived quality in order to discriminate between them, and ensure objective and consistent decisions”. (Anderson, 2007, pp. 3-5).

What is Scoring?

What Is a Credit Score?

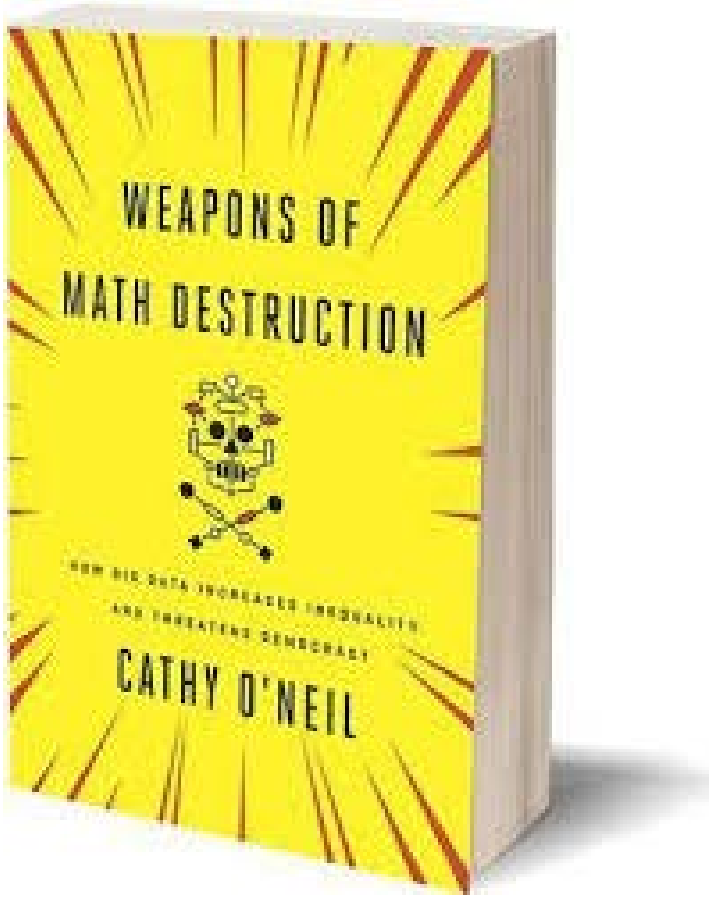
The term “credit score” is a generic reference to the use of statistical models (derived from group probabilities) to estimate the likelihood that individuals will repay a loan or have a negative financial event, such as a default on a credit obligation



(Robinson & Yu, 2014; (Cullerton, 2013)

Where scores are used?

- Predictions of risk- credit assessment, Criminal sentencing, predictions, hiring.
- Evaluation of quality\ efficiency- evaluation of teachers, personality test for job applicants, responsible driving.
- Prediction of desired outcome- baseball team will win a game, a consumer will buy a product(Predatory ads), voting behavior.
- Reputation- scores are given to doctors and lawyers, landlords and tenants, restaurants and hotels.



“Social” scoring in China

The Chinese government, By 2020, plans to set up a national system designed to value and engineer better individual behavior by establishing the scores of 1.4 billion citizens.

China's Social Credit System

- "allow the trustworthy to roam everywhere under heaven while making it hard for the discredited to take a single step."'
- Suzhou, uses a point system where every resident is rated. One can earn bonus points for benevolent acts and lose points for disobeying laws, regulations, and social norms.
- In Shenzhen, authorities recently launched the use of facial recognition and online shaming to crackdown on small crimes such as jaywalking.
- In Xiamen, where the development of a local social credit system started as early as 2004, authorities reportedly automatically apply messages to the mobile phone lines of blacklisted citizens.

Mr Liu is on a "dishonest personnel" list because he lost a defamation lawsuit in 2015 and was asked by the court to pay a fine that is still outstanding according to the court record.

"No one ever notified me," Mr Liu, who claims he paid the fine, said. It's baffling how they just put me on the blacklist and kept me in the dark."

Like the other 7 million citizens deemed to be "dishonest" and mired in the blacklist, Mr Liu has also been banned from **staying in a high-rate hotel, buying a house, taking a holiday, and even sending his nine-year-old daughter to a private school.**

One more example

- In 2015, Zhong Pei, a then 16-year-old student living in Jiangsu, was blacklisted for being dishonest, after her father killed two people and died in a car accident.
- It took Ms Zhong four months to dispute the court's decision and get her name off the list in 2017 to board a train and enroll in her university.

Consumers Profiling

- People are rated by their consumption behavior and preference among other factors.
- For example, Sesame Credit is a private credit system developed by the Alibaba-affiliated company Ant Financial.
- "Someone who frequently buys diapers would be considered as probably a parent, who on balance is more likely to have a sense of responsibility."

The US Credit Score Industry

- Predictive statistical models of creditworthiness were used first in the 1950s with the development of the FICO score.
- FICO score has come to dominate consumer financial markets, 90% of all lending decisions in the U.S. are influenced by FICO.
- In 2006 the three major credit bureaus (Equifax, Experian, and TransUnion) jointly created the VantageScore which is currently being championed as an alternative to FICO's score.
- Scores are used as a benchmark in accessing consumer credit of all kinds, from bank loans to cell phone contracts to credit cards and auto loans. But also for non-credit decisions such as: employment, residency, buying insurance and more.

Errors and Inaccuracies

- In 2013 the FTC found that about 1 in 5 Americans have credit reports which contain errors.
- CRAs often fail to effectively address error complaints-they devote limited resources to addressing errors and the investigations conducted by furnishers are often inadequate. The CRAs typically accept the word of the furnisher in disputes, even if the furnisher has not provided evidence to validate the disputed information. (Consumers Union of U.S., 2013)

Deterministic Tool

If someone decides to take a step towards being fiscally conservative, they may close credit cards that they no longer want, and then they are punished for this by FICO.

Attempts at Regulation

Two dimensions of regulation:

- Privacy- their permissible purposes are about accuracy and transparency of data collected in the records
  - The Fair Credit Reporting Act (FCRA) was the first federal law that was initiated in 1970. Between 1996-2003 it was amended four times (1996,1998,1999, 2003).
- Consumer protection regulation-
  - The Equal Credit Opportunity Act requires credit scoring systems to not use race, sex, marital status, religion, or national origin as factors comprising the credit score.
  - The Credit Card Accountability Responsibility and Disclosure (CARD) Act of 2009 aimed at limiting how credit card companies can charge consumers
  - Establishment of the Consumer Financial Protection Bureau (CFPB) which was authorized by the Dodd–Frank Wall Street Reform and Consumer Protection Act. gives consumers a voice when they want to dispute something with the financial industry.

Regulatory Pitfalls

- The score model is protected as a trade secret and thus protect big business rather than individuals
- Existing laws are insufficiently regulate the big-data profiling techniques. Thus, allowing discriminatory decision making.
- Privacy laws do not apply to the algorithms itself
- Fair credit laws – do not determine which uses are legitimate

Toward a more comprehensive regulatory regime

For Financial Scoring

Data Collection

- Transparency of data sources, type of data collected
- Objectivity of the data collected- discriminatory data, profiling
- Feed back mechanisms- accuracy of data, dispute mechanisms
- Is the citizen aware of data collection?

Data processing

- Transparency- Is the participant aware of being modeled? Transparency of the model?
- Objectivity- Use of proxies- are the data relevant to the outcomes they are trying to predict?
- Feed back mechanisms- is the model being refined? does effectiveness is measured?
- Subjectivity-who designs the model? What is that person or company trying to accomplish?

Data Use

- What is the score used for?

- whether a score has the capacity to grow exponentially? Can it scale?

- Is the citizen aware of the data use?

Conclusions

- big data and algorithmic decision making increase and exacerbate techniques of social and financial scoring
- Techniques of scoring are constituting individuals as risks with scientific and
- The legitimacy of the US credit scoring is not an encouraging example as to the future of regulating algorithms

- The regulatory principles which will make scores just and fair, if possible at all, are not in the realm of soft law. For sure not only.
- They involved the creation of regulatory regimes for data collection, data processing/scoring and data uses.