

DATA AND EVIDENCE FOR JUSTICE REFORM (DE JURE)



Driving change by transforming justice systems to protect individual liberties, preserve equal opportunities, and build respectful societies.

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The Data and Evidence for Justice Reform (DE JURE) program aims to revolutionize the way we measure, understand and enhance legitimacy and equality in justice systems. Efficient, fair, and accessible justice systems promote peace and security, support economic investment and growth, and provide fundamental protections to citizens essential for sustainable poverty reduction and increased shared prosperity.

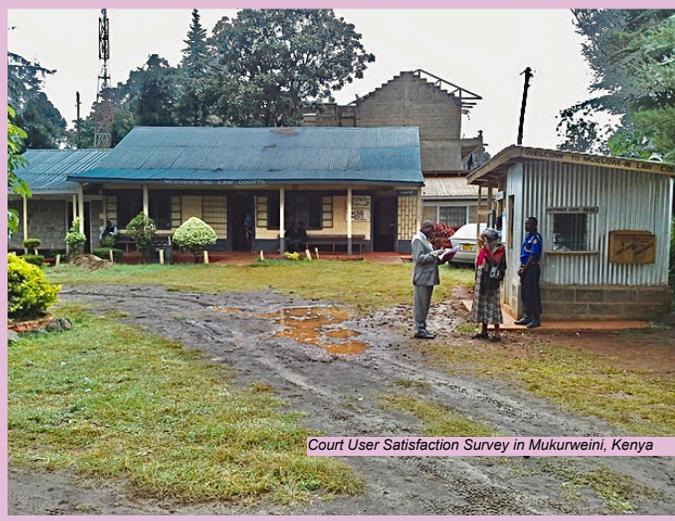
Based in the World Bank's Development Impact Evaluation (DIME) department, the **DE JURE program leverages DIME's extensive experience in developing customized data and evidence ecosystems to produce actionable information, and recommending specific policy pathways to maximize impact.** DIME's model has produced tangible results, achieving a high level of policy influence with 67 percent of DIME evaluated projects scaling up or down their programs depending on evaluation results.

DE JURE builds on the World Bank's extensive global engagement on justice and development. This includes a portfolio of 800 projects spanning over 25 years that have leveraged the Bank's multidisciplinary expertise to support justice and development. Working with counterparts across the private and public sector space, the Bank has developed a rich set of expertise on analytical tools to measure the economic costs of injustice and benefits of reform.

DE JURE further builds a global platform to expand the evidence base of "what works" in justice, leveraging emerging and innovative analytical tools to diagnose bottlenecks and propose solutions. **DE JURE harnesses the advent of big data availability in law and justice to uncover trends and evidence on systematic biases, racial and gender prejudices, and other threats to equitable justice.** Through the use of cutting-edge research techniques, the program measures efficiency, quality and access to justice, as well as impacts on downstream outcomes such as economic growth, conflict and violence, and corruption. The program capitalizes on emerging government interest to use administrative data, machine learning, and Randomized Control Trials to achieve a more just system. This typically operates through a dialectic: accessing data, discussing analytics, hypothesizing interventions, providing tools, ensuring relevance and take up of solutions, and disseminating lessons learnt across World Bank clients.

Program Vision

- Promote the development of just societies, protect individual liberties, and advance equal treatment and opportunities
- Support the creation of reliable, transparent, and accountable institutions
- Revolutionize the way societies examine questions of justice, such as judicial biases across gender, class, and ethnicity
- Bring the high rigor of science to justice systems



Court User Satisfaction Survey in Mukurweini, Kenya

Program Breakdown

I. Data

- Improving case management systems where they exist, facilitating them where they don't, and enhancing interoperability between data systems
- Creating structured data from unstructured legal data and integrating these with administrative data ecosystems
- Developing open-source platforms for data collection to inform justice reform

II. Analysis

- Identifying core issues in justice system functioning and performance: what are the major causes of inefficiency and bias?
- Measuring and documenting impacts of justice reforms
- Leveraging machine learning to identify and remedy biases in judicial decision-making

III. Experimentation

- Iteratively testing new approaches to improve justice systems, such as personalized data dashboards for judges that give them real-time feedback on their decisions
- Implementing randomized control trials to assess the efficacy of interventions for individuals and firms and enhance development goals
- Creating policy feedback mechanisms that create conditions for accountability to a societies' aspirations and normative commitments to justice

The Availability of Data

Recent innovations have opened up new opportunities for empirical research on the delivery of justice. Court proceedings and rulings are now increasingly digitized, allowing the construction of large-scale datasets. Additionally, computer scientists have

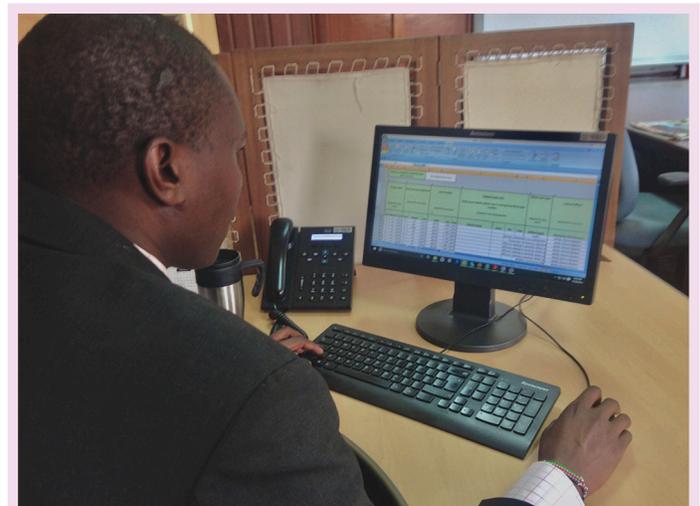
developed a slate of machine learning tools that can produce interpretable data from unstructured text – including written judicial opinions – making it possible to analyze a quantity of text that would be far too large for humans to read. These machine learning tools allow researchers to form predictive models of judge decision-making to better understand biases in that decision-making. Furthermore, online content makes it possible to systematically describe the biographies of individual judges and the characteristics of their past rulings, even in lower level courts.

Governments' investments in case management systems and 'eCourts' have generated vast quantities of very specific and previously obscure data on the functioning of courts. DE JURE's accompanying technology-based interventions have made these data easy to retrieve, analyze, display, and apply to produce rapid solutions in identifiable justice problems. By leveraging this data, DE JURE is the first program of its kind that aims to transform the way judiciaries work. Measurable indicators and open judiciaries are essential to improve the sense of fairness, legitimacy, and accountability of legal institutions.

The Data Revolution in Justice

What if we could use high-frequency data and the text of judicial decisions to:

- Understand what sectors of the population lack access to justice
- Diagnose the exact reasons why cases get backlogged
- Evaluate the specific impact of any new law on citizens and businesses
- Incentivize judges in order to increase their efficiency
- Study the impact of justice on firms' outcomes
- Diagnose and reduce biases in judicial decisions
- Highlight and share good practices in laws and regulations across countries



Improving the Quality of Justice by Using Artificial Intelligence

Do judicial rulings betray systematic biases, arbitrariness, or inefficiencies in the administration of justice?

Data: We use large-scale datasets of all court proceedings together with machine learning tools to produce interpretable data from unstructured text.

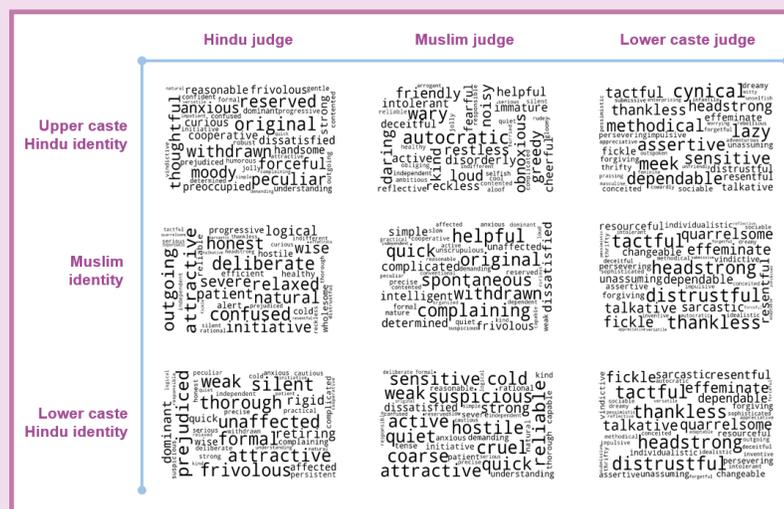
Insights:

- Use data to guide the judiciary and offer solutions to the problems

- of legal arbitrariness, gender and ethnic biases, and case processing inefficiency.
- Increasing digital infrastructure facilitates e-justice innovations from virtual hearings to text and audio debiasing, and from chatbots to e-arbitration.

Judicial Biases in India

India is the world's largest common law legal system. As of 2019, 105,000 judges working in 6,000 courts have 650,000 cases on their dockets. Fair and efficient resolution of these cases would ease the lives of millions of Indians. These policy stakes motivate this project, which we hope will generate useful insights for India and for other court systems in the developing world.



In this project, we look at judicial discrimination toward women, Muslims, and members of Scheduled Castes/Tribes (SC/STs), building on a large literature documenting institutional disadvantages for these groups (Bertrand et al., n.d.; Hnatkovska et al., 2012; Hanna and Linden, 2012). Using rich location-specific datasets on group-distinctive names, we will categorize judges and litigants by gender, religion, and subcaste (jati). We can then analyze how the identity of judges and litigants affects case expediency, the direction of rulings, and how those rulings are justified.

Preliminary evidence finds that Hindu judges describe the Hindu identity more positively; SC/ST judges describe Muslims more negatively.

The Impact of Judicial Speed on Firm Outcomes in Croatia

In 2010, the Ministry of Justice in Croatia launched an Integrated Case Management System (ICMS) to electronically record and track the progress of all court cases in Croatia. The DE JURE program is leveraging the power of this rich, case-level database to evaluate the impact that the speed of justice can have on the financial outcomes of firms, using random allocation of cases to judges to produce a randomized controlled trial of our interventions.

The first map illustrates that despite the introduction of a more efficient case management system, in half of Croatia's commercial courts, backlogged cases (i.e. cases that have been pending for 3 years or longer) continue to constitute up to 18% of the overall stock of cases. The problem is particularly worse in the counties with the highest caseloads – Zagreb, Rijeka and Split.

If firm resources remain tied up in prolonged court proceedings, it can begin to impede the operations of a firm, and the extent of this effect can be regionally heterogeneous. The following map shows the impact of judge speed – measured by the proportion of cases the assigned judge resolved within 1 year – on total firm assets. It suggests that gains are to be had even in areas with lower backlogs because firm assets are highly responsive to increases in judge speed in counties like Karlovac and Dubrovnik that lie in the bottom quartile in terms of backlog.

Proportion of backlogged cases in commercial courts
Years: 2010–2016



Elasticity of firm assets to judicial speed in commercial courts
Years: 2010–2016



Digital Interfaces and Personalized Interventions

The data below can be used to increase access to justice or personalize interfaces for judges, mediators, and other decision-makers. Using these interfaces, we can test an incremental AI framework as follows:

Stage 0: Assess if a human decision-maker is “better” or “worse” than the predicted self.

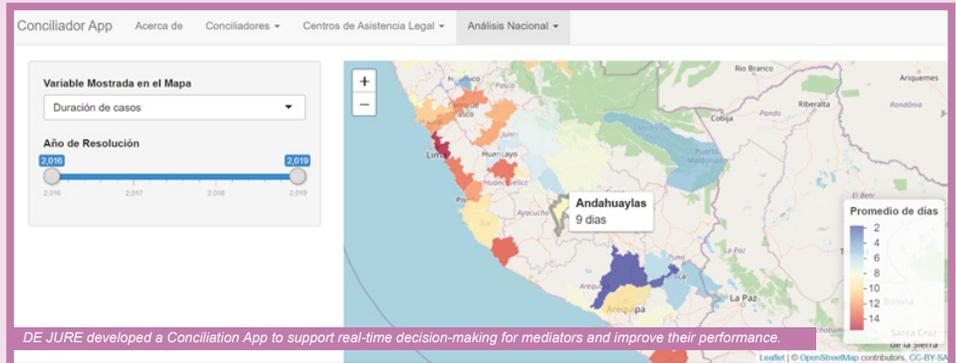
Stage 1: Show the predicted self as default.

Stage 2: Nudge decision-makers to “pay more attention” if deviating in direction likely to lead to error, reversal, or bias.

Stage 3: Offer dropdown menu to access explanations, or, ask the decision-maker to explain their deviation from default.

Stage 4: Offer predictions of others as a platform to access a community of experts.

Stages 5-8: Offer a committee’s recommendation, opening the app to the public to use as a teaching tool and offer A|B inputs to others for automated causal inference.



Country Specific Examples of Our Work



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