The Role of Justice in Development: The Data Revolution

DE JURE (Data and Evidence for Justice Reform)

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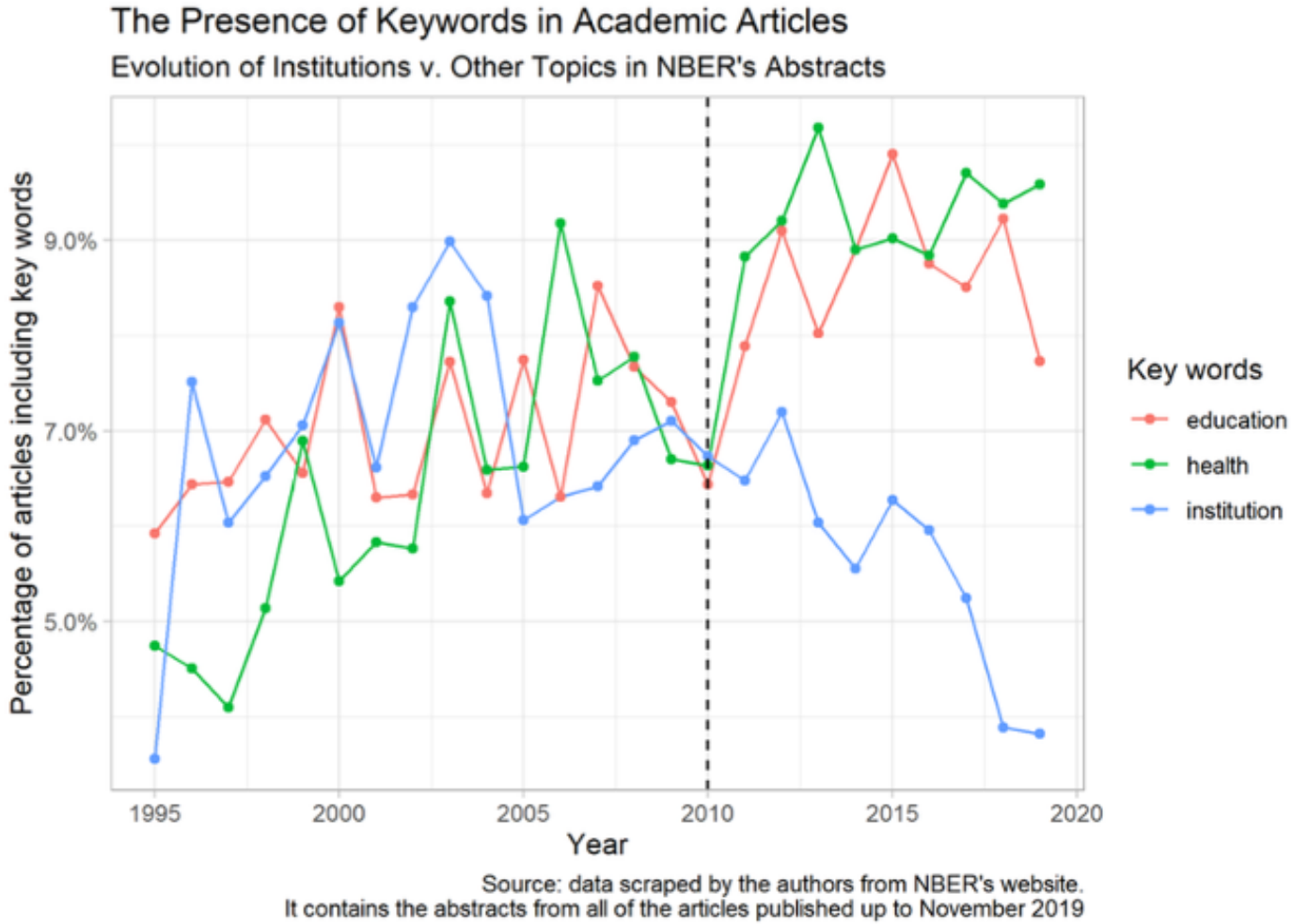
Economic development & legal institutions are associated

MACRO EVIDENCE, E.G.:

WHAT ABOUT THE MICRO EVIDENCE?

State of the Literature

Research on "institutions" has declined persistently in recent years



Expansion of experimental methods for causal inference, relgating rule of law and courts to a secondary position

State of the Literature

- Rule of Law $\Longrightarrow$ Contract Enforcement $\Longrightarrow$ Economic Growth
  - Firm-to-firm trade
    - ★ Chemin 2012
  - Investment and production decisions
    - ★ Klein et al. 1978; Chakraborty et al. 2018; Ahsan 2013; Boehm and Oberfield 2018; Besley and Mueller 2018
  - Lending
    - ★ Christini et al. 2001; Jappelli, Pagano, and Bianco 2005; Laeven and Majnoni 2005; Shvets 2013; Schiantarelli, et al. 2016
  - Entrepreneurship
    - ★ Lichand and Soares 2011; Chemin 2009
  - Firm size
    - ★ Laeven and Woodruff 2004; Kondylis and Stein 2018; Besley and Burgess 2004

India: Impact of Legal Reform (Chemin 2012)

Causal inference from leveraging spatial variation in implementation

Table 3. Impact of the 2002 Amendment Act on the Probability to Experience a Breach of Contract

	(1)	(2)	(3)	(4)
	Nonrecovery of service charges, fees, credit			
2002 Amendment Act * Year 2005	−0.0145	−0.0142	−0.0142	−0.0135
	(2.16)**	(2.10)**	(2.10)**	(1.97)**
2002 Amendment Act * Year 2002	−0.0128	−0.0128	−0.0128	−0.0149
	(3.92)***	(4.03)***	(4.03)***	(4.88)***
2002 Amendment Act * Year 2001	−0.0029	−0.0017	−0.0017	−0.0033
	(0.87)	(0.54)	(0.54)	(0.90)
State dummies	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes
NIC2 dummies	No	Yes	No	No
NIC3 dummies	No	No	Yes	Yes
State-level controls	No	No	No	Yes
Observations	627,106	627,075	627,075	599,852

Faster speed of justice and fewer breaches of contract

India: Impact of Court Efficiency (Amirapu 2017)

Causal inference from leveraging spatial and temporal variation

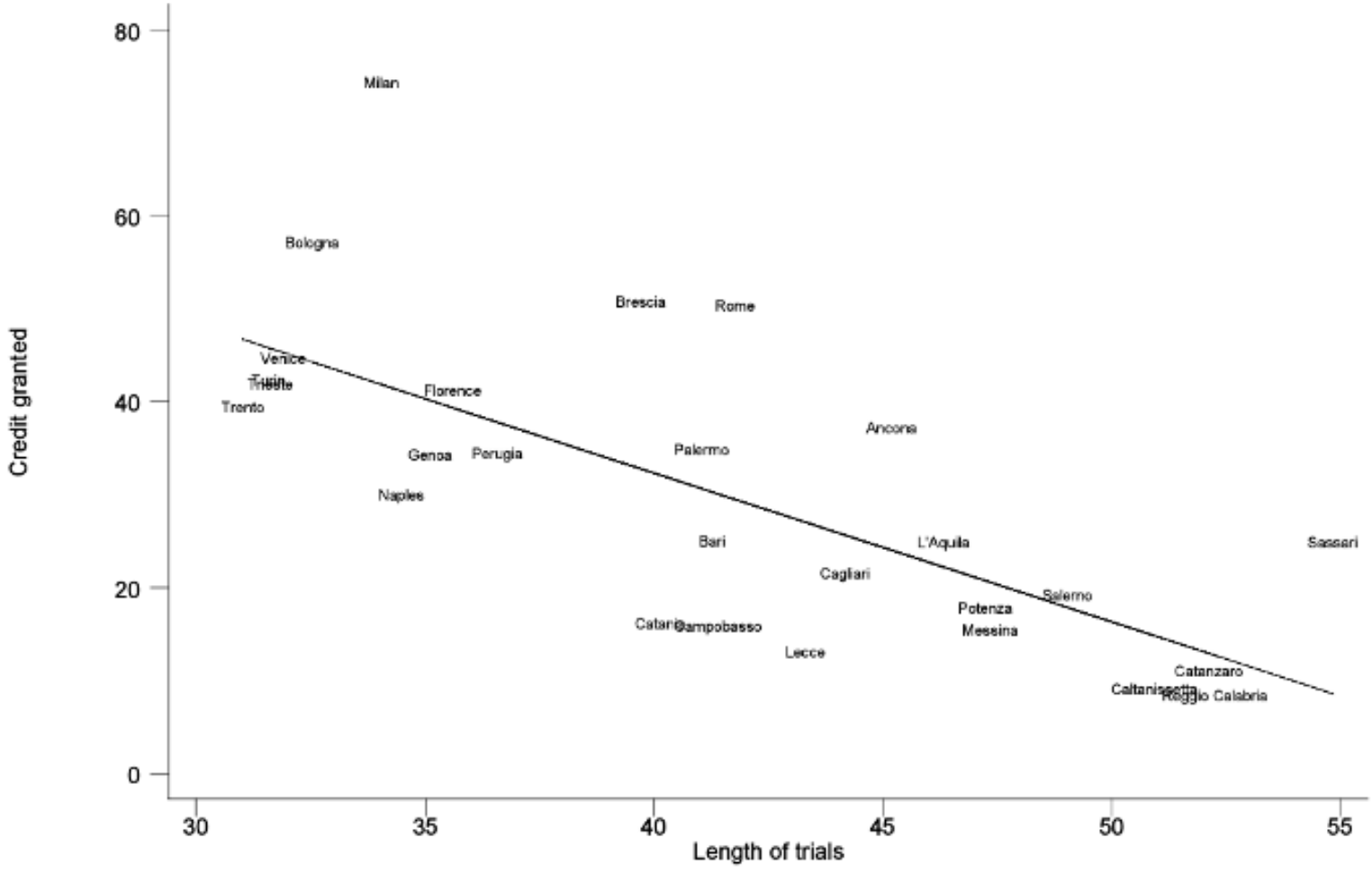
Table 6: Industry Growth and Court Efficiency (Main Results)

	(1) growth in value added	(2) growth in fixed capital	(3) growth in employment	(4) growth in num units
Panel A: Main Terms Only				
court efficiency	0.014**	0.011**	0.017***	0.011***
	(0.006)	(0.005)	(0.004)	(0.002)
contract intensity	0.003	-0.002	0.001	-0.004**
	(0.005)	(0.006)	(0.003)	(0.002)
court efficiency X contract intensity	0.015***	0.013**	0.009***	0.005**
	(0.005)	(0.005)	(0.003)	(0.002)
Panel B: State and Industry FEs				
court efficiency X contract intensity	0.015***	0.014***	0.009***	0.006***
	(0.005)	(0.005)	(0.003)	(0.002)
Observations	1709	1939	1940	1947

Positive correlation between court efficiency and firm growth

Italy: Impact of Trial Duration (Jappeli et al., 2005)

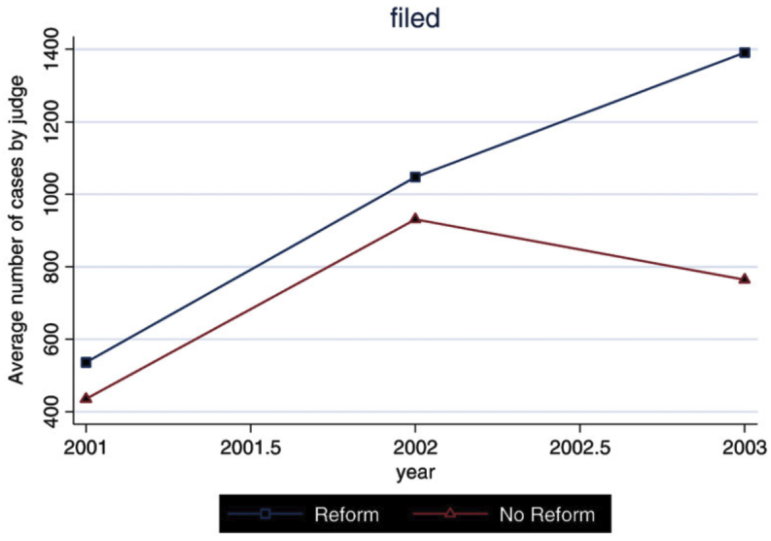
Causal inference from leveraging spatial and temporal variation

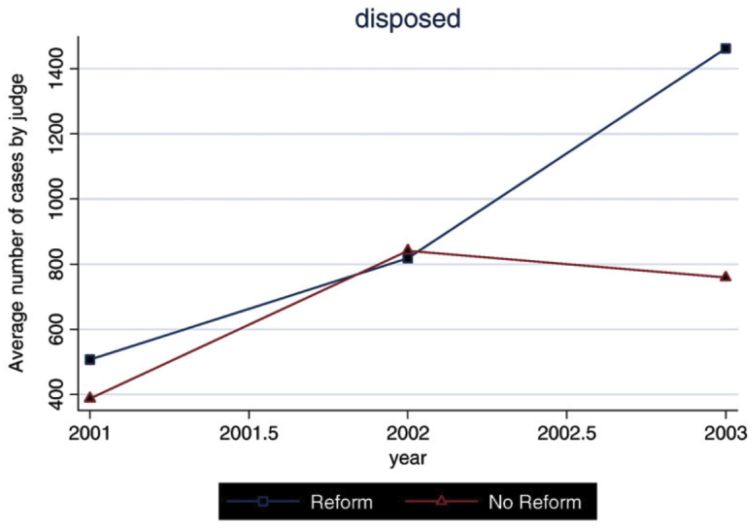


Longer trial duration associated with less credit availability

Pakistan: Impact of Judicial Training (Chemin, 2009)

Case-flow management techniques increased number of cases filed and disposed



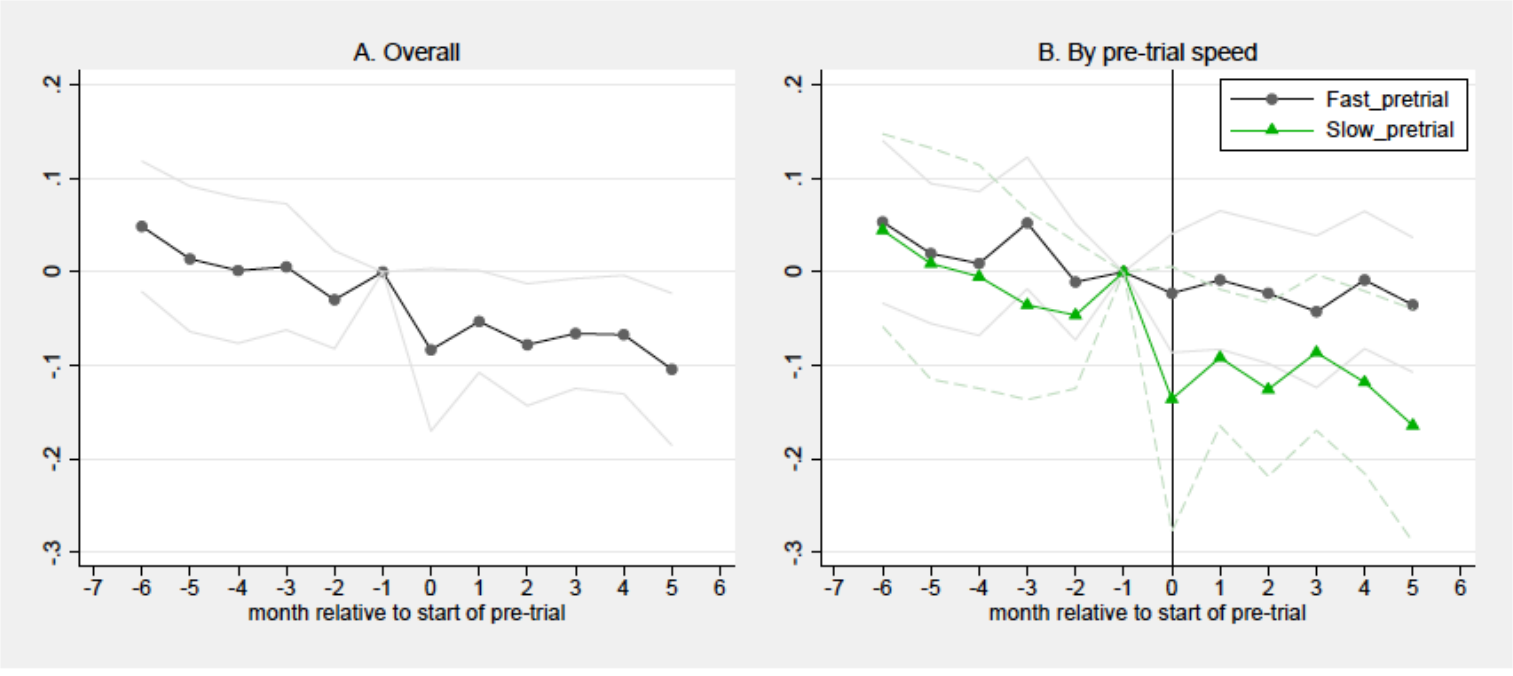


Entry rate of new firms increased due to the reform $\sim$ 0.5% GDP

Senegal: Impact of Procedural Reform (P122225)

Reform halved the negative financial impact of case delay

Figure 1: Case parties' log revenues around the start of the pre-trial

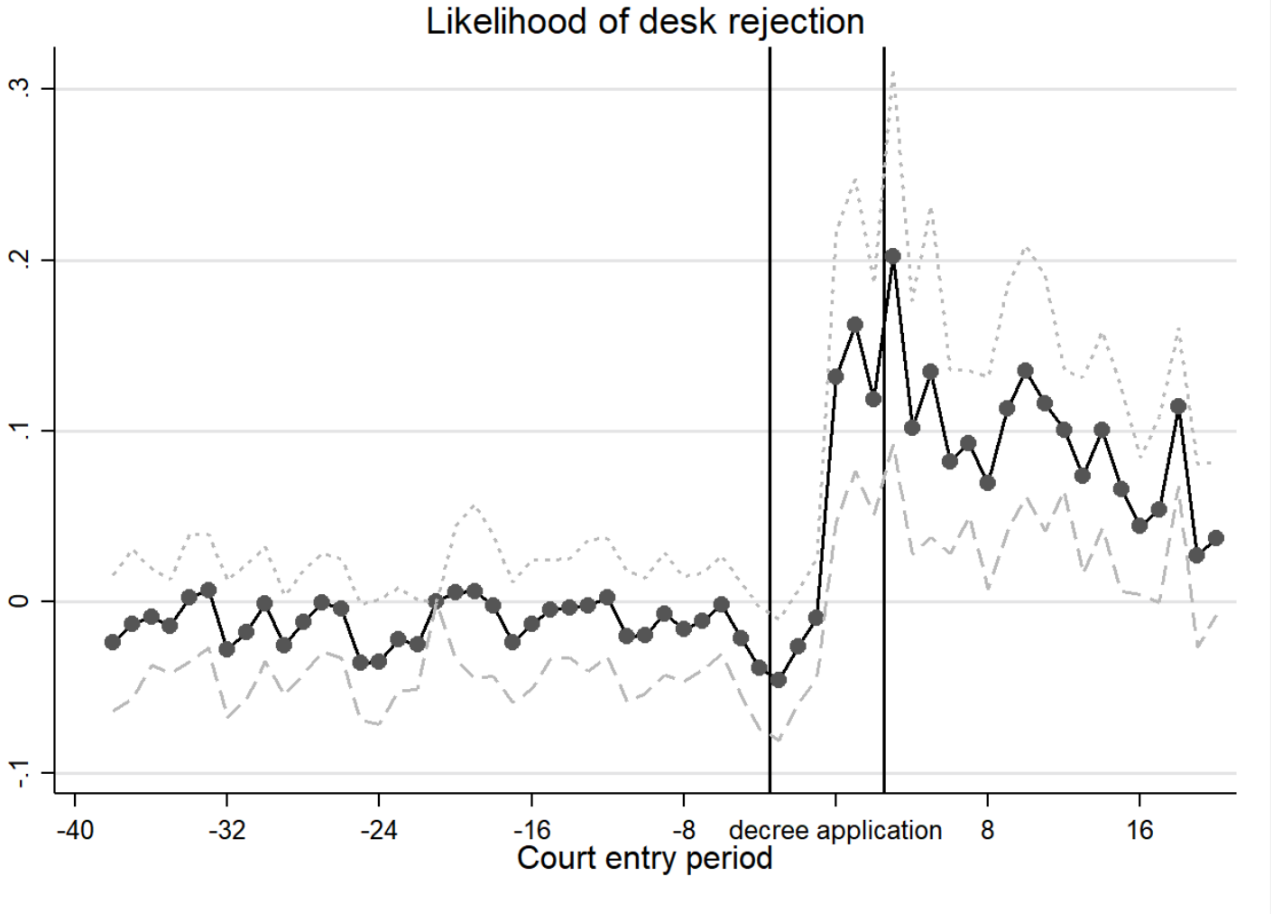


Note: For all x-axes, month is indexed in relation to the case-level pre-trial start month (zero-centered)

Revenue is 8% lower for cases with pre-trial duration $\geq$ 4 months

increased firm satisfaction

Senegal: Impact of Procedural Reform (Kondylis and Stein Restat R&R)



=> Staggered roll-out of judicial reform giving judges the duty and powers to conclude pre-trial proceedings in 4 months

Firm Assets Associated with Judicial Speed

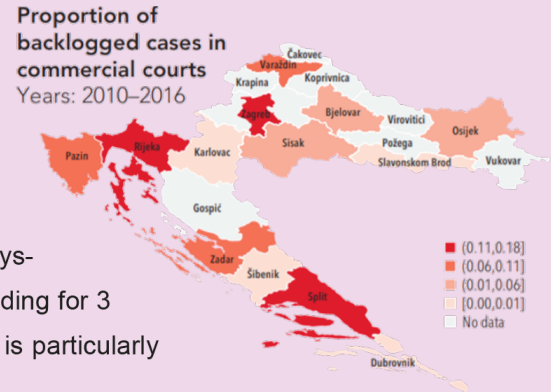
.. and more associated, in slower jurisdictions

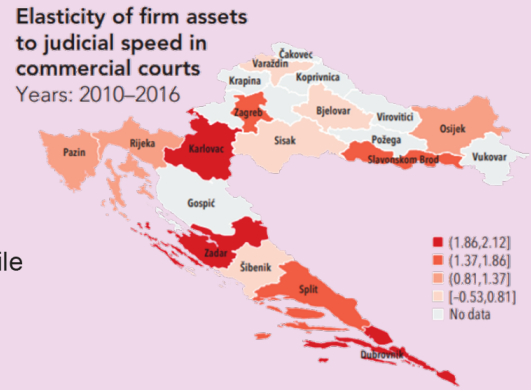
The Impact of Judicial Speed on Firm Outcomes in Croatia

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.





Justice Sector Support Project (P104749)

Is it causal?

Empirical Challenges

Medicine, prior to clinical trials

Theories about the effects, but no causal evidence (a century ago)

Randomizing judicial decisions

Violates our notion of justice (equal treatment before the law)

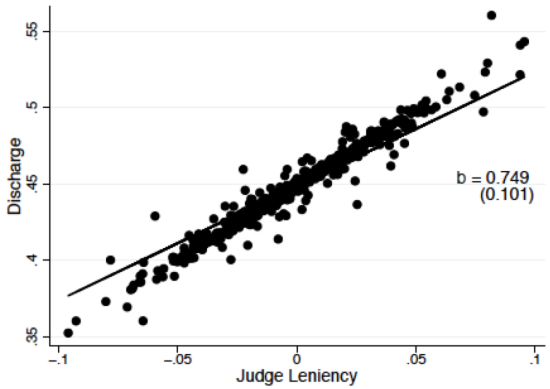
Randomizing judicial assignment

Generates retrospective "clinical trial" (Kling AER 2006; many since "credibility revolution" in economics)

Debt Relief and Debtor Outcomes (AER 2014)

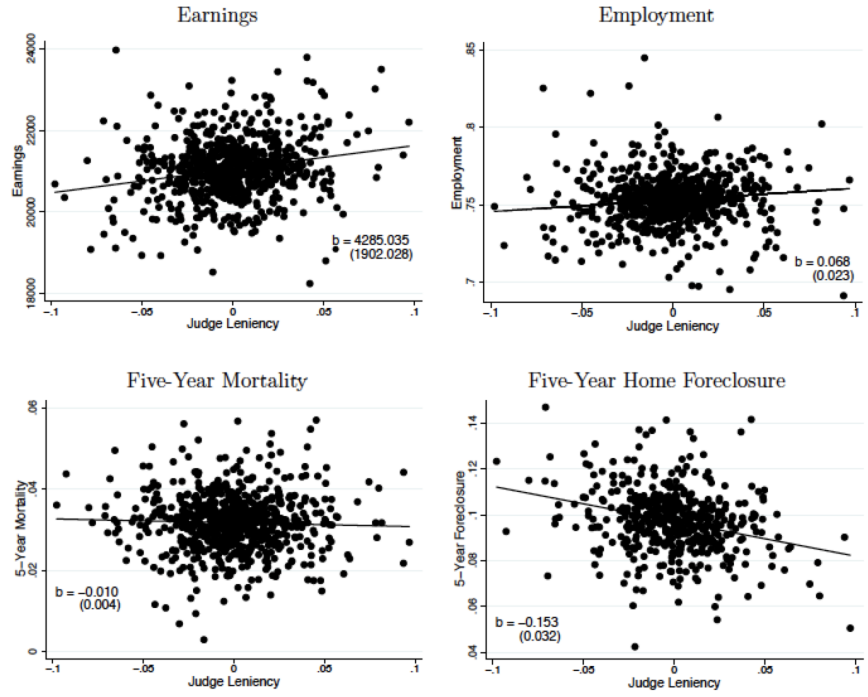
Cancelling debt causes ↑Earnings, ↑Employment, ↓Mortality, ↓Foreclosure

Figure 1
Chapter 13 Judge Leniency and Chapter 13 Bankruptcy Protection



Notes: This figure plots Chapter 13 discharge vs. our leave-one-out measure of judge leniency. The sample consists of all first-time Chapter 13 filers between 1992 and 2005 in the 42 offices that randomly assign filings to judges. Judge leniency is the leave-one-out mean rate of granting Chapter 13 bankruptcy protection for the assigned judge minus the leave-one-out mean rate of granting bankruptcy protection for the court in the same filing year. To construct the binned scatter plot, we first regress an indicator for discharge on office by month-of-filing fixed effects and calculate residuals. We then take the mean residual in each judge by year bin, adding the mean discharge rate to each residual to aid in the interpretation of the plot. The solid line shows the best linear fit estimated on the underlying micro data estimated using OLS. The coefficients show the estimated slope of the best-fit line including office by month-of-filing fixed effects, with standard errors clustered at the office level reported in parentheses.

Figure 3
Chapter 13 Judge Leniency and Labor Supply, Mortality, and Home Foreclosure

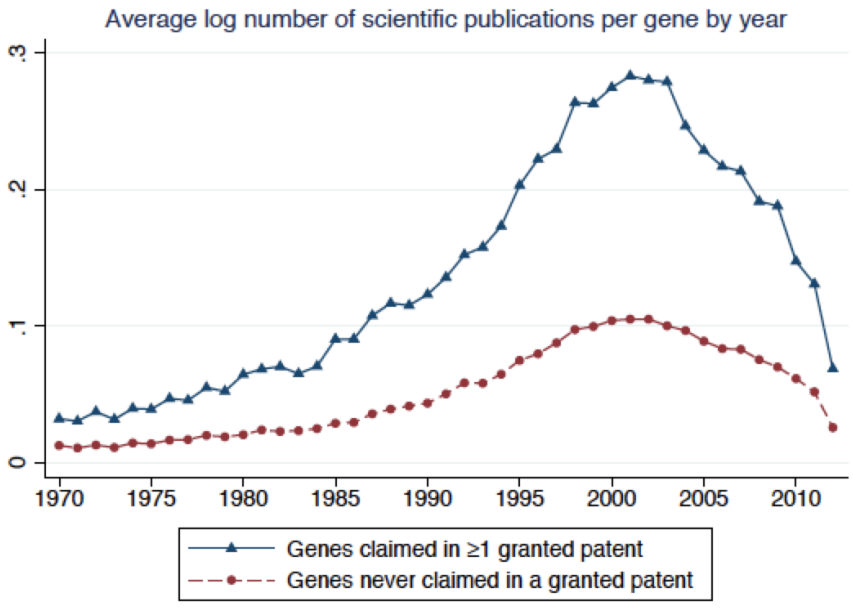


Notes: These figures plot earnings, employment, five-year mortality, and five-year foreclosure vs. our leave-one-out measure of judge leniency. The earnings and mortality sample includes all first-time filings between 1992 and 2005 in the 42 offices that randomly assign cases to judges. The foreclosure sample includes the subset of those filings originating in county by year bins with foreclosure data coverage. Judge leniency is the leave-one-out mean rate of granting Chapter 13 bankruptcy protection for the assigned judge minus the leave-one-out mean rate of granting bankruptcy protection for the court in the same filing year. To construct the binned scatter plot, we first regress each outcome on office by month-of-filing fixed effects and calculate residuals. We then take the mean residual in each judge by year bin, adding the mean discharge rate to each residual to aid in the interpretation of the plot. The solid line shows the best linear fit estimated on the underlying micro data estimated using OLS. The coefficients show the estimated slope of the best-fit line including office by month-of-filing fixed effects, with standard errors clustered at the office level reported in parentheses. Earnings are winsorized at the top and bottom one percent. Employment is an indicator for non-zero wage earnings on the W-2. All monetary values are expressed in real 2000 dollars. Mortality is an indicator for being deceased in or before the indicated year using information from the Death Master File. Foreclosure is an indicator for a filer's home receiving a notice of default, receiving a notice of transfer or sale, or being transferred to a REO or a guarantor in or before the indicated year.

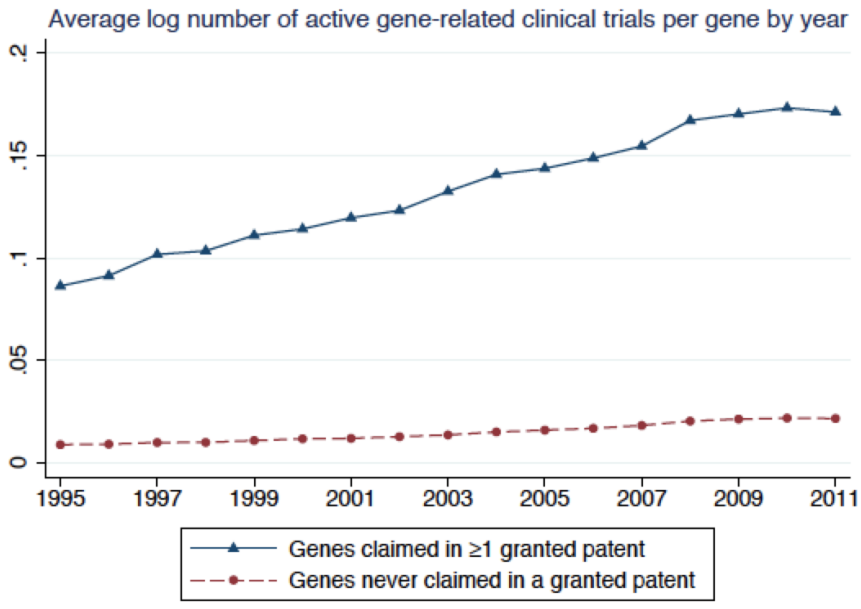
Patents and Innovation (AER 2019)

Patented genes are more valuable, but does patenting make them valuable?

Figure 1: **Follow-on Innovation on Patented and Non-Patented Human Genes**



(a) Gene-Level Scientific Publications

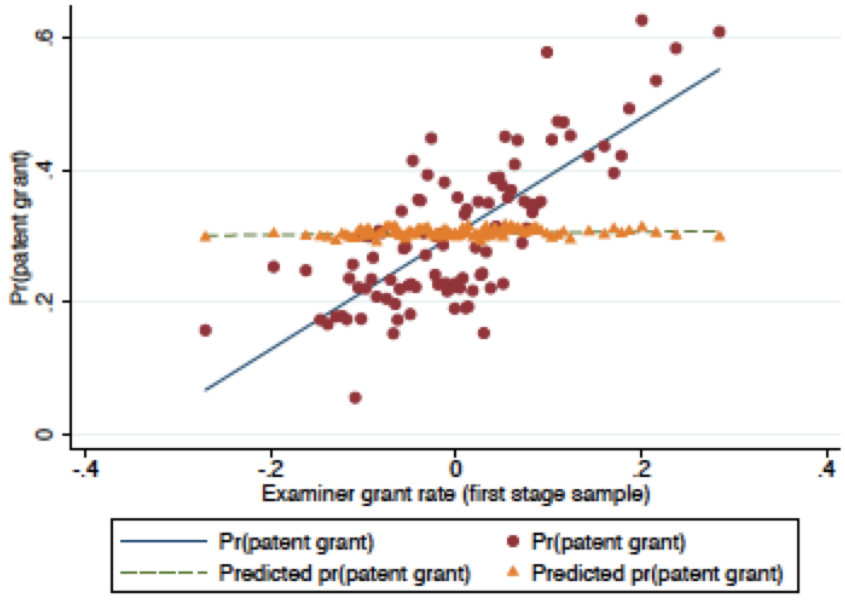


(b) Gene-Level Clinical Trials

Notes: This figure plots trends in follow-on innovation by year separately for genes that ever receive a patent and for genes that never receive a patent. The figure is constructed from gene-level data. Panel (a) uses gene-level scientific publications as a measure of follow-on innovation, and plots the average log number of scientific publications by year in each year from 1970 to 2012. Panel (b) uses gene-level clinical trials as a measure of follow-on innovation, and plots the average log number of clinical trials by year in each year from 1995 to 2011.

Patents examiners have strong habits

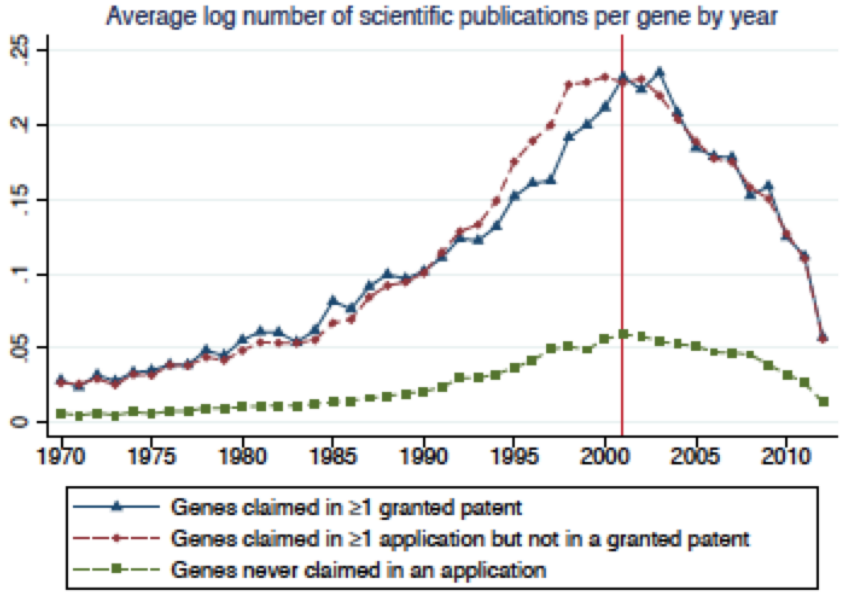
Figure 3: **Probability of Patent Grant by Examiner Leniency**



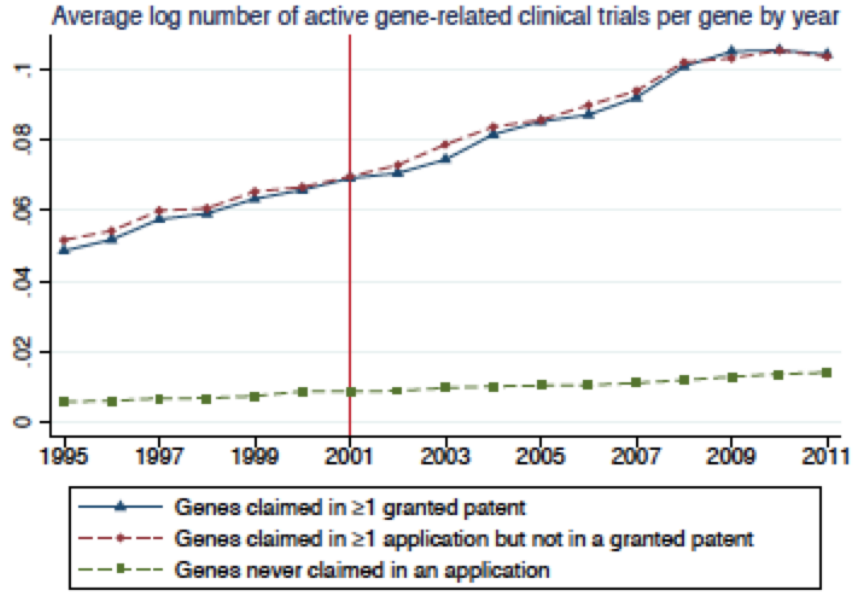
Notes: The figure relates our examiner leniency measure, residualized by Art Unit-by-application year fixed effects, to two variables: (1) the patent grant rate and (2) the predicted patent grant rate, where we predict patent grant as a function of our two measures of patent value fixed at the time of application (patent family size and claims count). All measures are constructed in our first stage sample (N=14,476).

What is causal effect of patent protection on follow-on innovation?

Follow-on innovation similar for accepted & rejected patents



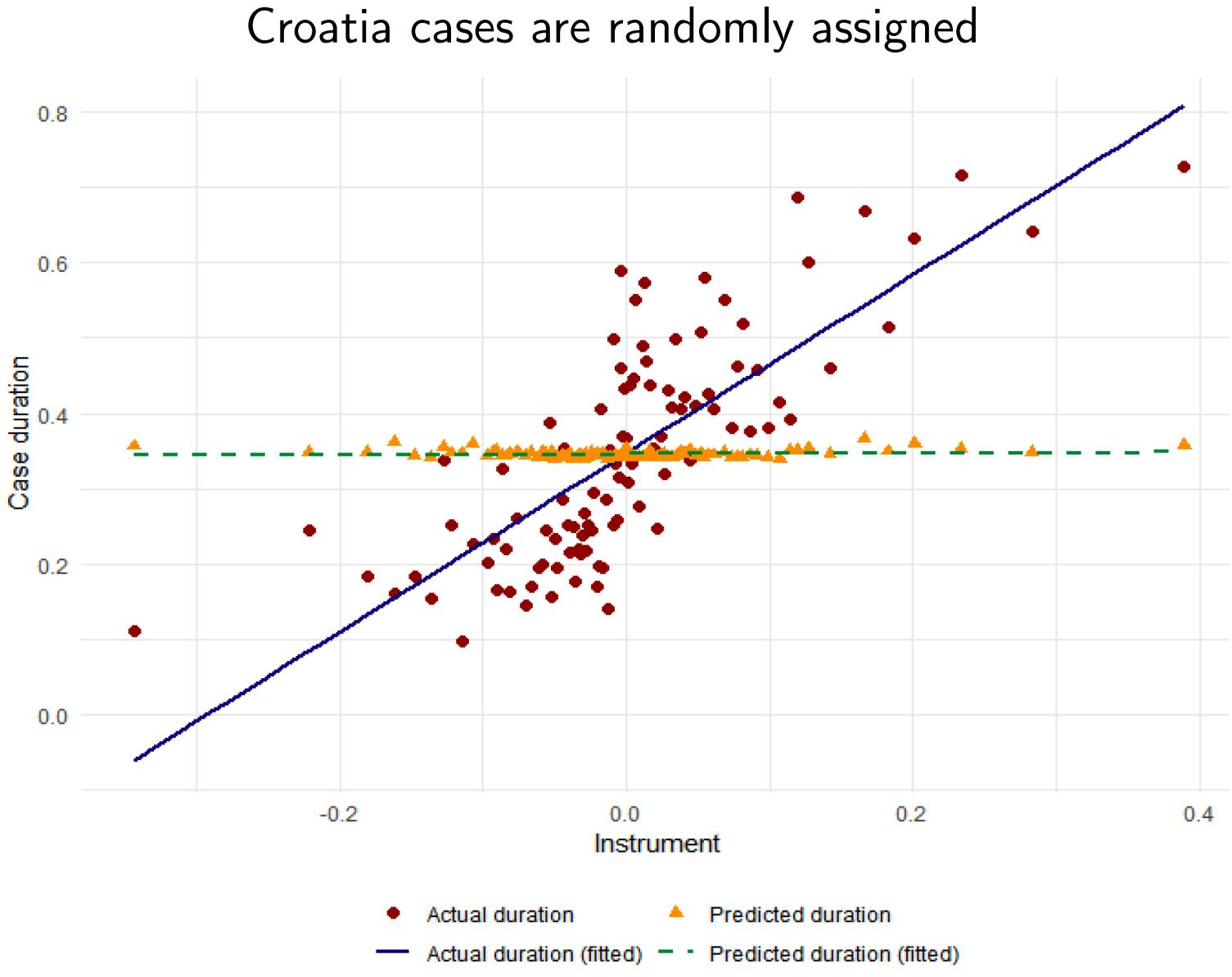
(b) Gene-Level Scientific Publications



(c) Gene-Level Clinical Trials

Notes: This figure plots trends in patenting and follow-on innovation by year separately for three groups of genes: genes claimed in at least one granted patent; genes claimed in at least one patent application but never in a granted patent; and (in Panels (b) and (c)) genes never claimed in a patent application. The figure is constructed from gene-level data. Panel (a) documents the share of genes receiving a patent grant by year; by construction, this is zero for the circle-denoted red dashed line in all years and reaches one for the triangle-denoted blue line in 2010; the intermediate years simply illustrate the time path of patent grants between 2001 and 2010 for the triangle-denoted blue line. Panel (b) uses gene-level scientific publications as a measure of follow-on innovation and plots the average log number of scientific publications by year in each year from 1970 to 2012. Panel (c) uses gene-level clinical trials as a measure of follow-on innovation and plots the average log number of clinical trials by year in each year from 1995 to 2011. The vertical line in the calendar year 2001 in Panels (b) and (c) denotes that, because this figure focuses on patents that were filed in or after November 2000, all years prior to 2001 can be considered a pre-period and used to estimate the selection of genes into patenting based on pre-patent filing measures of scientific research (publications) and commercialization (clinical trials).

What is the Impact of Speed of Justice?



What is the causal effect of faster case resolution?

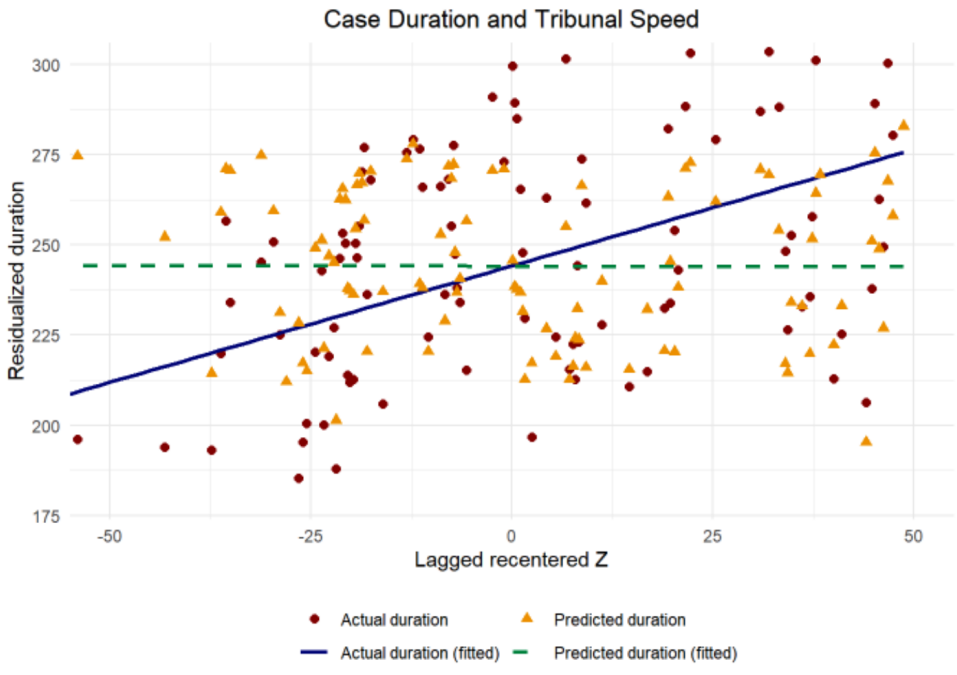
What is the Impact of Speed of Justice?

Preliminary evidence on Shortened bankruptcy proceedings

- **Second stage: Being randomly allocated to a fast judge in 2015 significantly causes:**
  1. current assets (2016) to increase by about 298%
  2. cash and cash equivalent balance (2016) to decrease by about 280%
  3. shareholder funds to increase by about 1,333%
  3. loans to decrease by about 269%
  4. value of debtors to decrease by about 164%

What is the Impact of Speed of Justice?

Chile cases are also randomly assigned to tribunals



Testing empirically the identification assumptions:

- **Tribunal assignment matters for case duration**: there is a steep positive correlation between tribunal speed and case duration (blue line)
- **Tribunal assignment is random**: there is no correlation between duration predicted by baseline case characteristics and tribunal speed (green dotted line)

Impact of Speed of Justice

Preliminary evidence on Summary cases (smaller firms)

	Log Sales		
	t-1	t0	t+1
	(1)	(2)	(3)
Tribunal Speed	-0.008	0.049	0.099***
	(0.025)	(0.034)	(0.034)
1st Stage F-stat	41	41	41
Y mean (level)	9.401	9.053	8.735

We are exploring similar research design anytime infrastructure permits

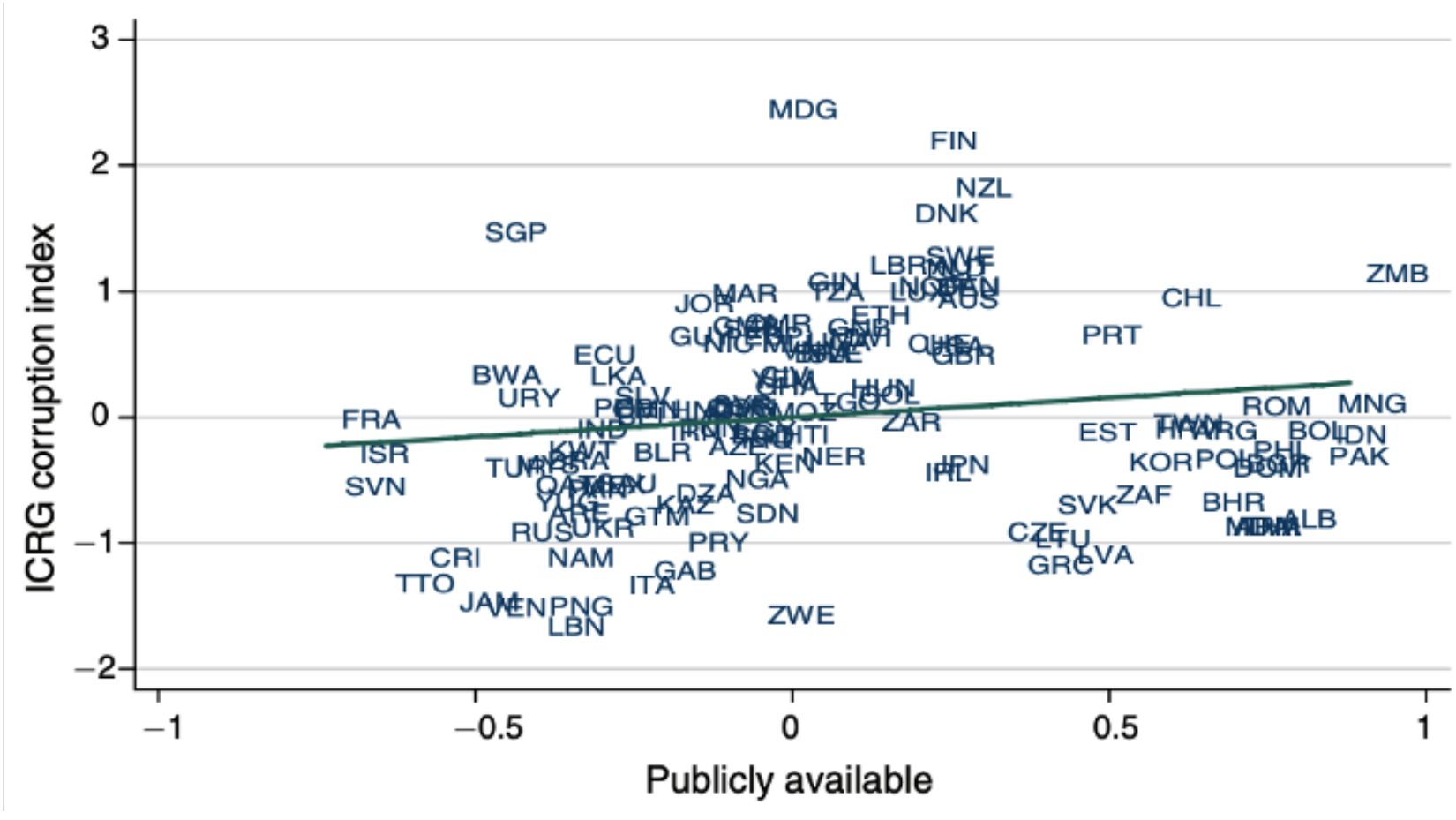
Quality of Rule of Law (anti-corruption, governance)

- Disclosure laws are associated with less corruption
  - Djankov et al., 2010
- Auditing reduces corruption
  - Faccio 2006; Ferraz and Finan 2008; Bobonis et al. 2016
- Quality promotes trust and pro-investment attitudes
  - Acemoglu et al. 2018; Di Tella et al. 2007

DATA REVOLUTION & TECHNOLOGY FACILITATES ACCOUNTABILITY

Disclosure laws associated with lower corruption (Djankov et al., 2010)

More business and financial disclosures of members of parliament associated with government quality



what about the causal evidence?

Brazil: Corrupt mayors ↓re-elected after audits (Ferraz et al. 2008)

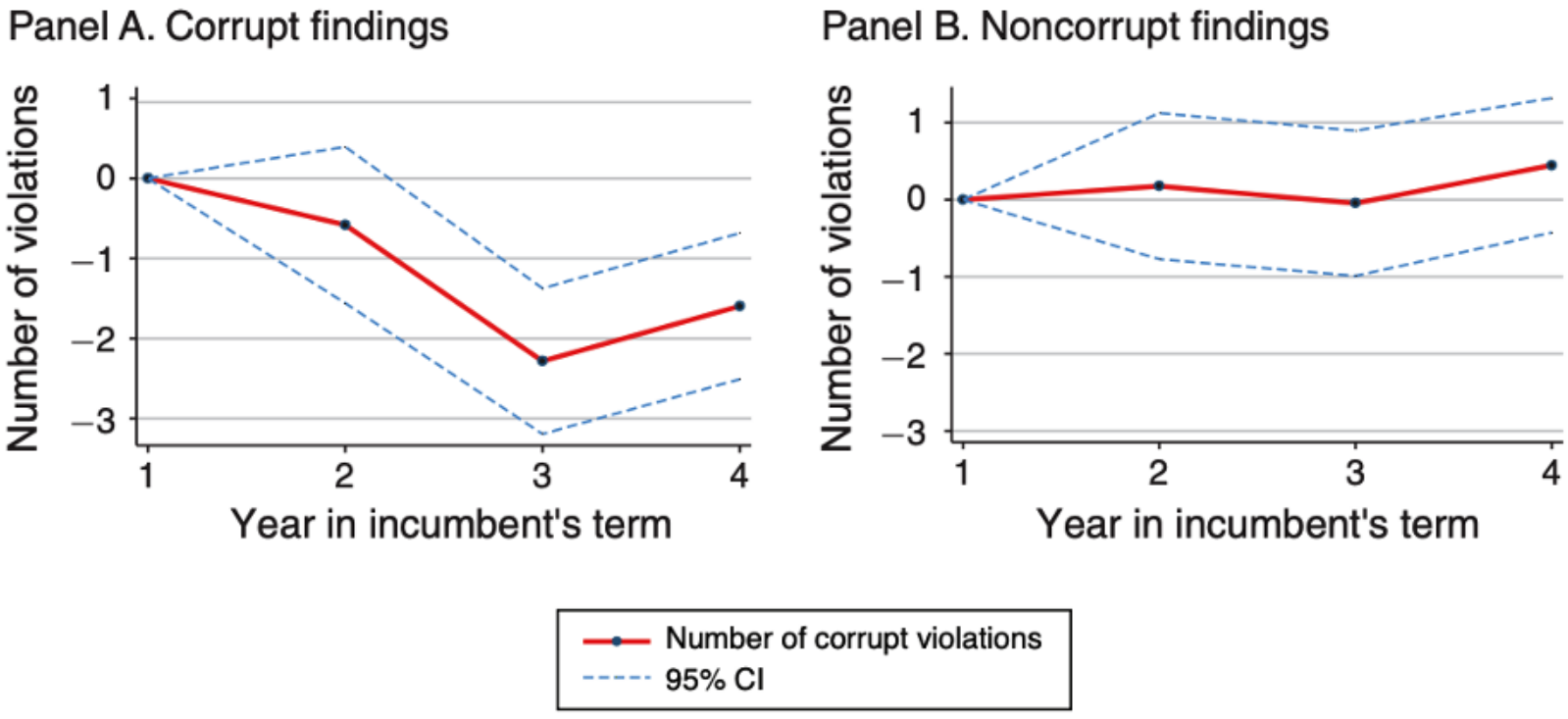
RANDOMIZED AUDITS OF MUNICIPAL FINANCES HAD LARGER EFFECTS WHEN CONDUCTED BEFORE ELECTIONS

TABLE II
THE AVERAGE EFFECTS OF THE RELEASE OF THE AUDITS ON ELECTORAL OUTCOMES

	All incumbent mayors		Only mayors that ran for reelection				
	Pr(reelection)		Pr(reelection)	Vote share	Win margin	Change in vote share	Change in win margin
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Preelection audit (1/0)	−0.036	−0.036	−0.059	−0.055	−0.020	−0.032	−0.028
	[0.053]	[0.052]	[0.065]	[0.072]	[0.027]	[0.018]+	[0.027]
Observations	373	373	263	263	263	263	263
R^2	0.05	0.17	0.22	0.16	0.22	0.39	0.31
State fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Municipal characteristics	No	Yes	Yes	Yes	Yes	Yes	Yes
Mayoral characteristics	No	Yes	Yes	Yes	Yes	Yes	Yes

Puerto Rico: Violations decline after disclosure (Bobonis et al. 2016)

of corrupt mayors



These are negative disclosures

what about positive disclosures?

Pakistan: Disclosure of governance ↑trust (Acemoglu et al. 2018)

RANDOMLY ASSIGNED INFORMATION ON FASTER COURTS INCREASED EXPECTED USAGE AND TRUST IN STATE COURTS

TABLE 3
EFFECTS OF STATE POSITIVE TREATMENT IN ANONYMOUS GAMES

	Expected Usage (1)	Allocation in Fund Dictator Game (2)
A. Direct effects (on state courts):		
Posttreatment	1.63	34.46
	(.10)	(2.84)
Constant	3.86	74.30
	(.07)	(2.01)
Observations (respondents)	498 (249)	498 (249)
B. Indirect effects (on panchayats):		
Posttreatment	−.66	−21.29
	(.08)	(3.64)
Constant	6.47	103.21
	(.06)	(2.57)
Observations (respondents)	498 (249)	498 (249)

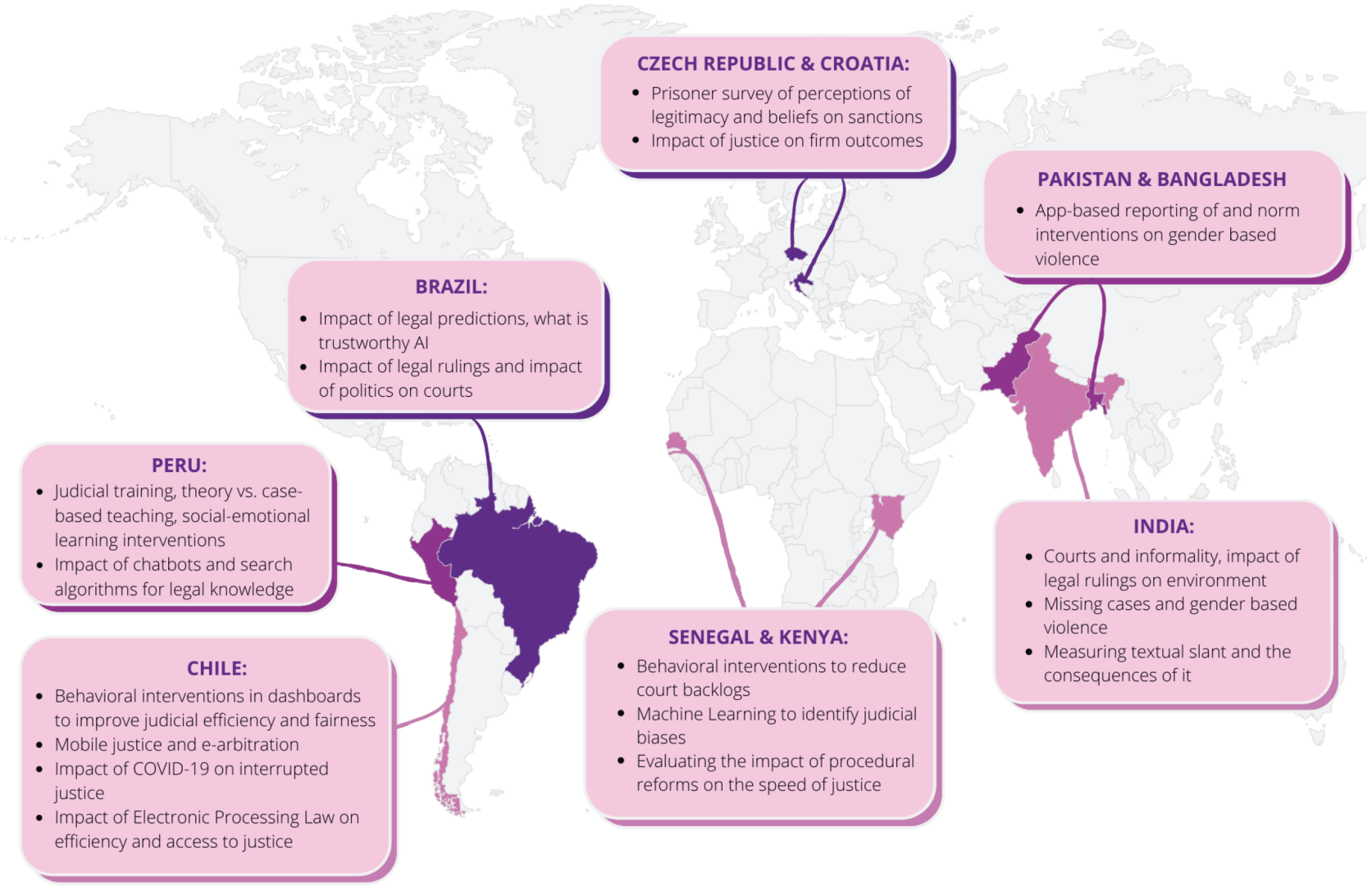
Argentina: Property rights ↑pro-market attitudes (Di Tella et al. 2007)

RANDOMLY ALLOCATED LAND TITLES INCREASED TRUST AND PRO-MARKET ATTITUDES

TABLE IV
BELIEFS AND PROPERTY RIGHTS IN THE SOLANO SETTLEMENT

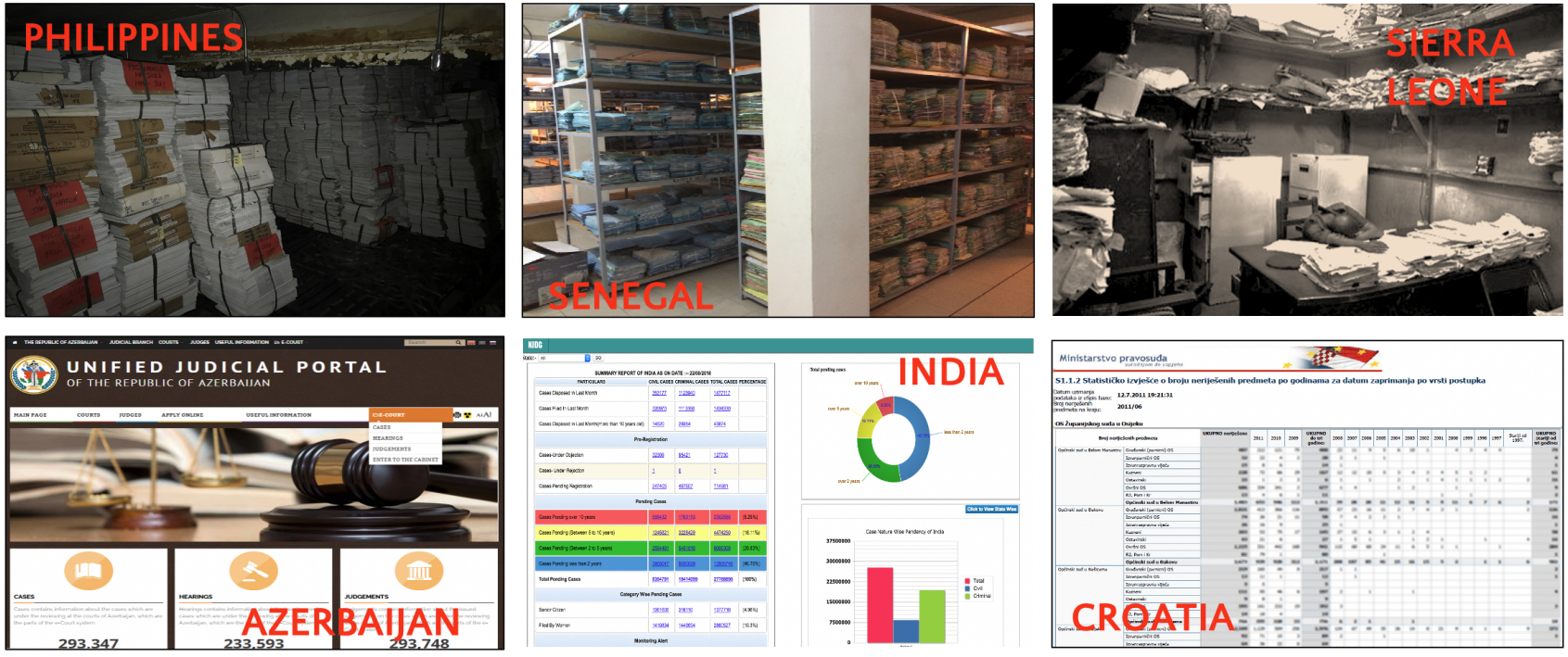
	(1a)	(2a)	(3a)	(4a)	(5a)
	Success-Alone	Money-Important	Effort-Better	Trust-Others	Market Beliefs
Property right	0.144**	0.202***	0.072	0.108*	0.527***
	(0.064)	(0.063)	(0.056)	(0.063)	(0.131)
Controls	No	No	No	No	No
Observations	312	312	313	313	312
	(1b)	(2b)	(3b)	(4b)	(5b)
Property right	0.169**	0.188***	0.022	0.139**	0.520***
	(0.066)	(0.068)	(0.056)	(0.065)	(0.133)
Controls	Yes	Yes	Yes	Yes	Yes
Observations	312	312	313	313	312

Country Specific Examples of Our Work



We run law and development RCTs through relationships with government partners who link legal cases to downstream effects for individuals and firms.

Data Ecosystems

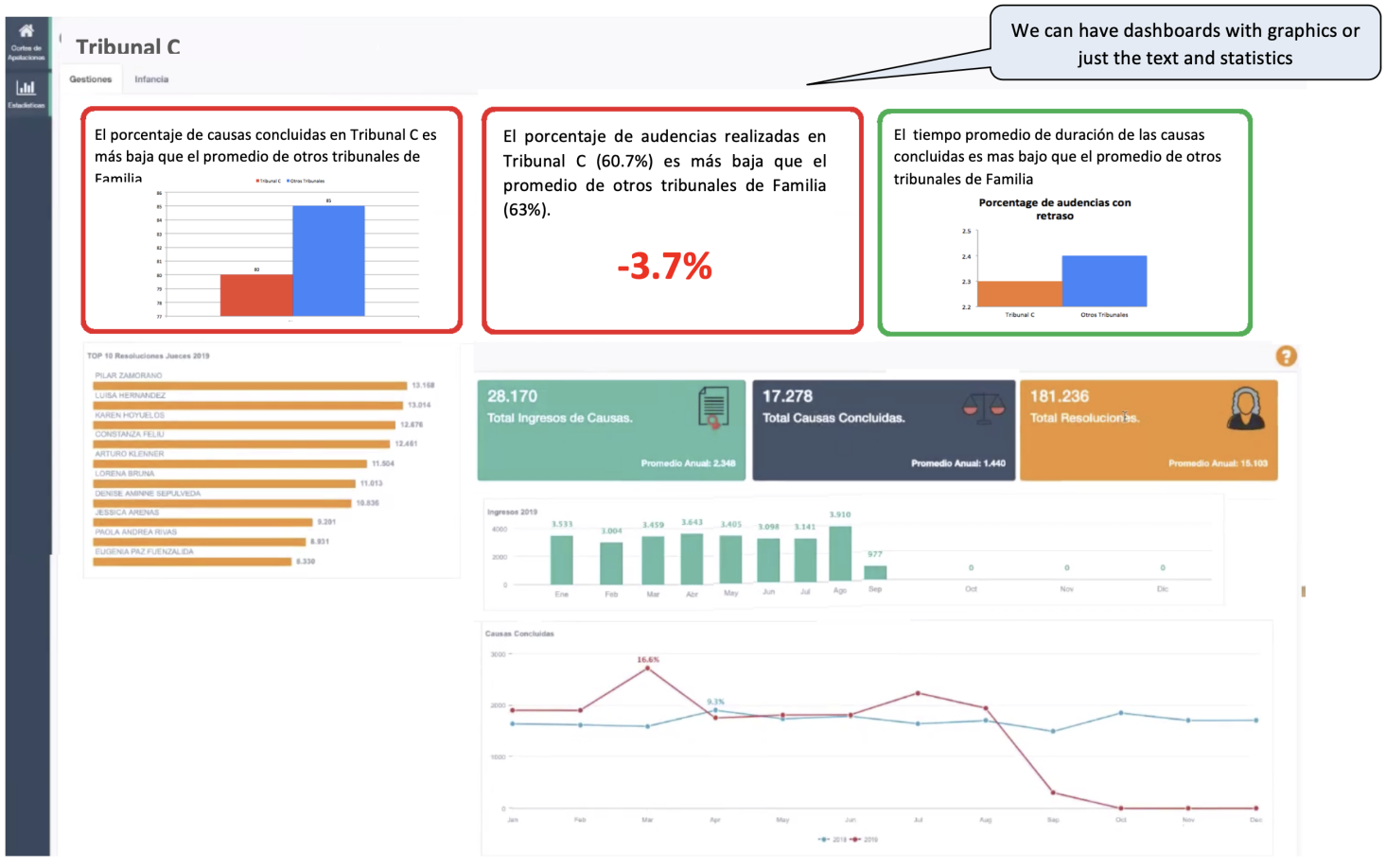


- Recent innovations have opened up new opportunities for delivery of justice
  - Increasingly digitized large-scale datasets
  - ML applications to produce interpretable data from unstructured text
  - Predictive models of decision-making to better understand biases and address them with digital interfaces

Personalized Interventions

This kind of data can be used to personalize interfaces for judges.

Another possibility for an algorithm is to choose the **three worst metrics** as oppose to just one.



Recommending Actions

Lending Agreement with Kenya: Judicial Performance Improvement (P105269)

REPUBLIC OF KENYA

COURT MONTHLY FEEDBACK REPORT
Baricho Magistrate Court
NOVEMBER 2018

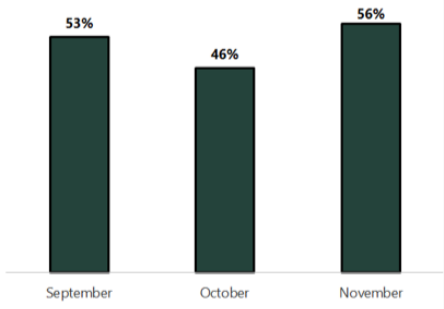
"By the end of my tenure in December 2020, we shall have no cases in court older than 3 years"

Honorable Justice David Maraga, Chief Justice

CRIMINAL CASES

SUMMARY OF KEY COURT EVENTS FOR OCTOBER 2018	
Cases filed	456
Cases resolved	234
Rulings and judgments	130
Adjournments	104

CASE CLEARANCE RATE (CCR) PREVIOUS THREE MONTHS



TOP THREE REASONS FOR ADJOURNMENT

Reason	Number	Percent
Prosecutor not present	44	30%
Typed proceedings not ready	34	20%
Both parties not present	17	13%

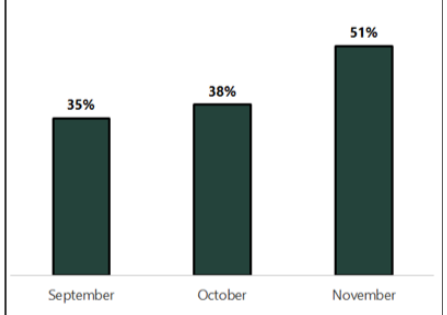
RECOMMENDED ACTION

Addressing	Prosecutor not present	increases CCR by	30%
Addressing	Typed proceedings not ready	increases CCR by	20%
Addressing	Both parties not present	increases CCR by	13%

CIVIL CASES

SUMMARY OF KEY COURT EVENTS FOR OCTOBER 2018	
Cases filed	422
Cases resolved	203
Rulings and judgments	80
Adjournments	123

CASE CLEARANCE RATE (CCR) PREVIOUS THREE MONTHS



TOP THREE REASONS FOR ADJOURNMENT

Reason	Number	Percent
Court not sitting	57	21%
Both parties not present	44	12%
Ruling not ready	12	9%

RECOMMENDED ACTION

Addressing	Court not sitting	increases CCR by	8%
Addressing	Both parties not present	increases CCR by	7%
Addressing	Ruling not ready	increases CCR by	4%

Notes:

Case Clearance Rate (CCR)- Case Clearance Rate (Resolved ÷ Filed) × 100 measures the extent to which the court system is able to dispose of cases relative to the cases filed within a specified time period. A clearance rate of 100% implies that the court is coping with its workload. More than 100% clearance rate indicates that the court is reducing its case backlog while less than 100% means that the court is accumulating more cases.

Resolved Case (RC) - Any case where a judgement or a final ruling closing the case has been made at the end of period under reference. It also means a finalized case.

Filed Cases (FC)- Any case that is registered in court of law for arbitration in a given period.

"Endless adjournments of cases on frivolous grounds" are a major cause of case backlog (Chief Justice Maraga 2019)

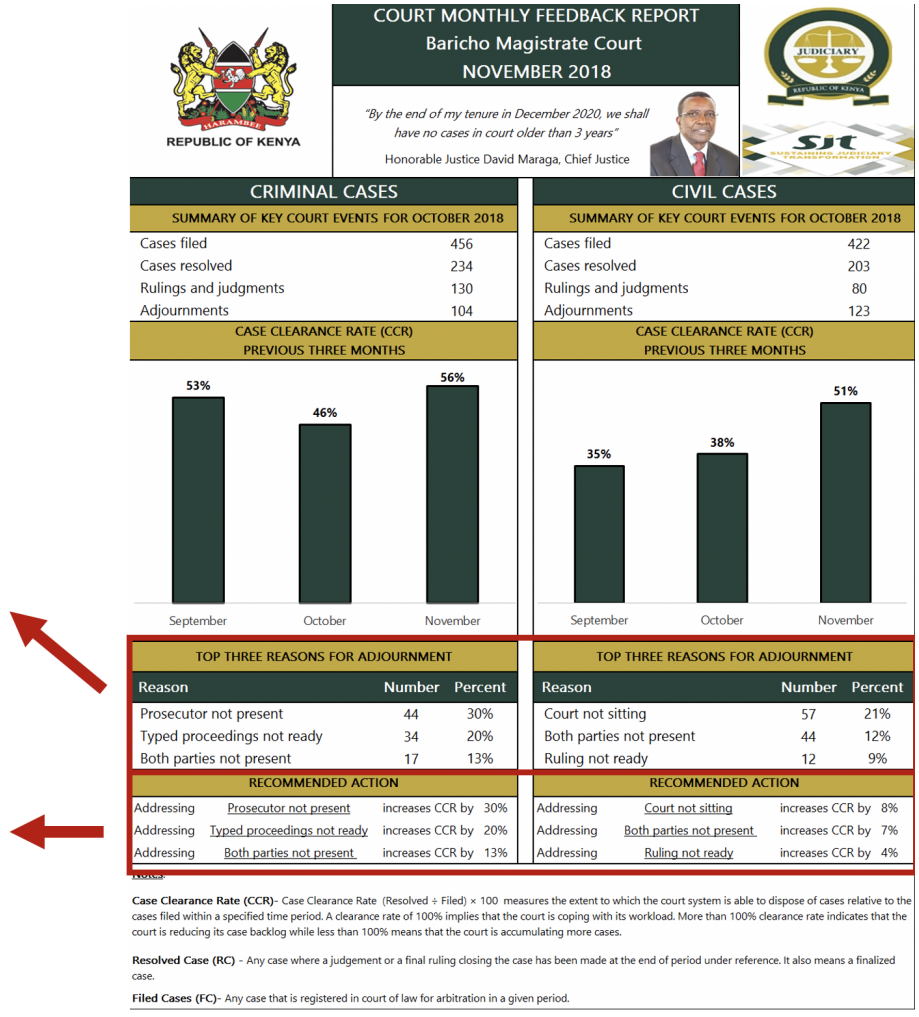
- Nation-wide experiment using the first digitized daily court records
  - Developed an algorithm to identify the greatest source of court delays
  - T1: provide actionable information
  - T2: + accountability (one-pager also sent to Court User Committees)
  - Control: status quo (no information), RCT across all 124 court stations

Data-Driven Recommendations

Efficiency in Kenya:
Can low cost, 'actionable' information improve performance?

TOP THREE REASONS FOR ADJOURNMENT		
Reason	**Number**	**Percent**
Prosecutor not present	44	30%
Typed proceedings not ready	34	20%
Both parties not present	17	13%

RECOMMENDED ACTION			
Addressing	Prosecutor not present	increases CCR by	30%
Addressing	Typed proceedings not ready	increases CCR by	20%
Addressing	Both parties not present	increases CCR by	13%



REPUBLIC OF KENYA

COURT MONTHLY FEEDBACK REPORT
Baricho Magistrate Court
NOVEMBER 2018

"By the end of my tenure in December 2020, we shall have no cases in court older than 3 years"
Honorable Justice David Maraga, Chief Justice

CRIMINAL CASES

SUMMARY OF KEY COURT EVENTS FOR OCTOBER 2018

Cases filed	456
Cases resolved	234
Rulings and judgments	130
Adjournments	104

CASE CLEARANCE RATE (CCR) PREVIOUS THREE MONTHS

TOP THREE REASONS FOR ADJOURNMENT

Reason	Number	Percent
Prosecutor not present	44	30%
Typed proceedings not ready	34	20%
Both parties not present	17	13%

RECOMMENDED ACTION

Addressing	Prosecutor not present	increases CCR by	30%
Addressing	Typed proceedings not ready	increases CCR by	20%
Addressing	Both parties not present	increases CCR by	13%

CIVIL CASES

SUMMARY OF KEY COURT EVENTS FOR OCTOBER 2018

Cases filed	422
Cases resolved	203
Rulings and judgments	80
Adjournments	123

CASE CLEARANCE RATE (CCR) PREVIOUS THREE MONTHS

TOP THREE REASONS FOR ADJOURNMENT

Reason	Number	Percent
Court not sitting	57	21%
Both parties not present	44	12%
Ruling not ready	12	9%

RECOMMENDED ACTION

Addressing	Court not sitting	increases CCR by	8%
Addressing	Both parties not present	increases CCR by	7%
Addressing	Ruling not ready	increases CCR by	4%

Case Clearance Rate (CCR)- Case Clearance Rate (Resolved ÷ Filed) × 100 measures the extent to which the court system is able to dispose of cases relative to the cases filed within a specified time period. A clearance rate of 100% implies that the court is coping with its workload. More than 100% clearance rate indicates that the court is reducing its case backlog while less than 100% means that the court is accumulating more cases.

Resolved Case (RC) - Any case where a judgement or a final ruling closing the case has been made at the end of period under reference. It also means a finalized case.

Filed Cases (FC)- Any case that is registered in court of law for arbitration in a given period.

Analyze and present correlates of delay

Accountability reduced adjournments

.. especially initiated by external parties (potentially frivolous)

	Adjournment	External Adjournment	Internal Adjournment
OnePager * February 2019	-0.014	-0.017	0.000065
	(0.012)	(0.011)	(0.0043)
OnePager CUC * February 2019	-0.031**	-0.030**	-0.0042
	(0.015)	(0.013)	(0.0043)
OnePager * March 2019	0.0016	0.0028	-0.00028
	(0.013)	(0.011)	(0.0041)
OnePager CUC * March 2019	-0.017	-0.022*	0.0014
	(0.015)	(0.011)	(0.0040)
OnePager * April 2019	-0.012	-0.0044	-0.0076
	(0.014)	(0.012)	(0.0063)
OnePager CUC * April 2019	-0.025	-0.023*	-0.0070
	(0.016)	(0.012)	(0.0063)
OnePager * May 2019	0.012	0.018	-0.0020
	(0.017)	(0.015)	(0.0053)
OnePager CUC * May 2019	-0.013	-0.012	-0.0026
	(0.017)	(0.015)	(0.0049)
OnePager * After June 2019	0.0058	0.0064	0.00013
	(0.014)	(0.012)	(0.0038)
OnePager CUC * After June 2019	-0.0070	-0.015	-0.00027
	(0.016)	(0.013)	(0.0043)
OnePager * Month Before	-0.0089	-0.0030	-0.0069
	(0.013)	(0.0091)	(0.0053)
OnePager CUC * Month Before	-0.0074	-0.010	-0.0084
	(0.013)	(0.011)	(0.0053)
Observations	6162668	6399868	6399868

After covid, should become monthly

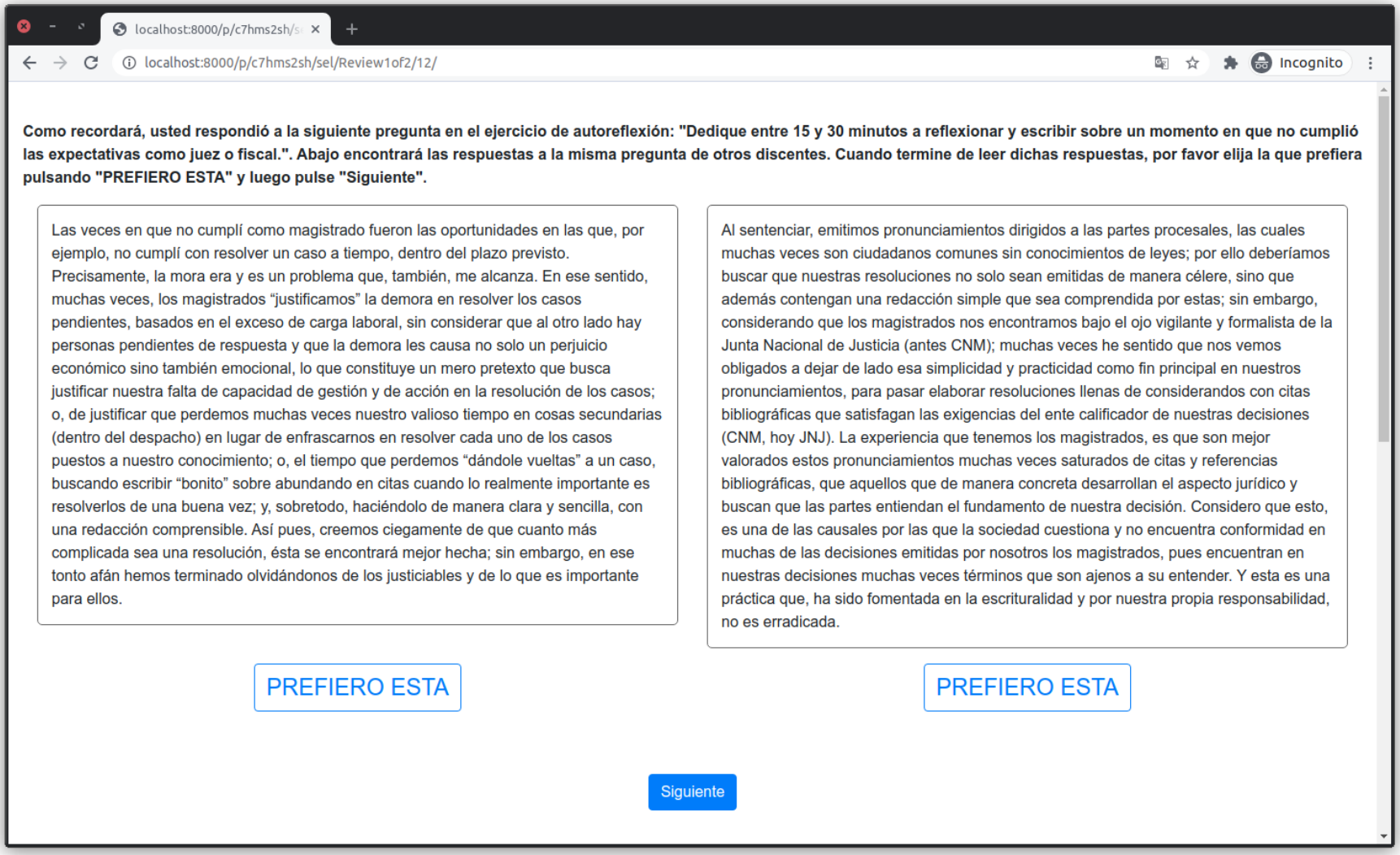
- Effect size of 3% are large relative to baseline of 18%

Advice is top-down based on data already collected

can we help countries generate their own better policies?

Self Reflection

Social-Emotional Learning Exercises - Advice Giving & Grading



See also *Eskreis-Winkler, Milkman, Gromet, Duckworth, PNAS 2019*

Recommending Actions to Each Other

Conciliator App | About | National Analysis | Conciliators | Legal Aid Centers | Login

- All Centers
- Geospatial Analysis
- Temporal Analysis
- Type of Case

Download CSV

Download PDF

Year of

2014 — 2020

2014 2019 2020

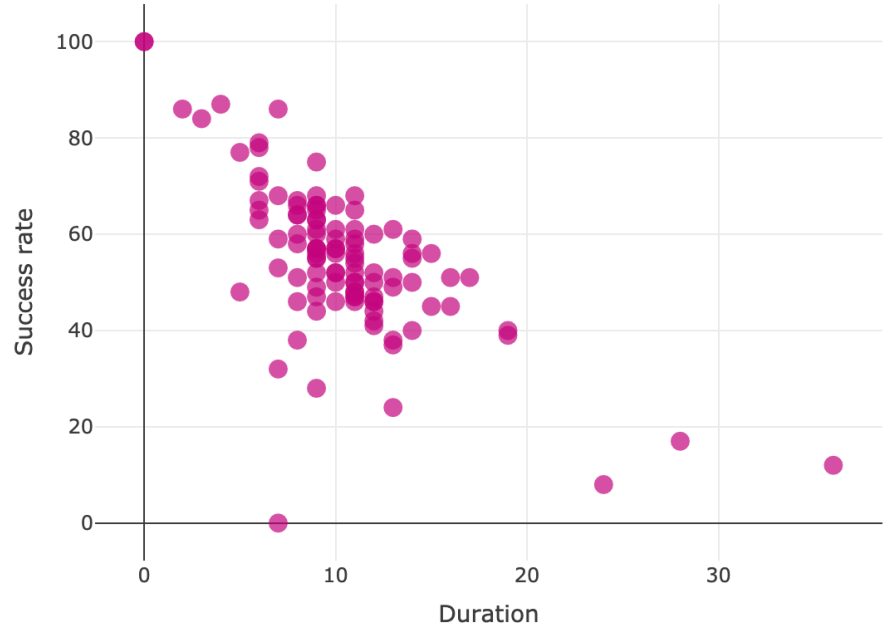
X: Duration

Y: Success rate

Show 25 entries

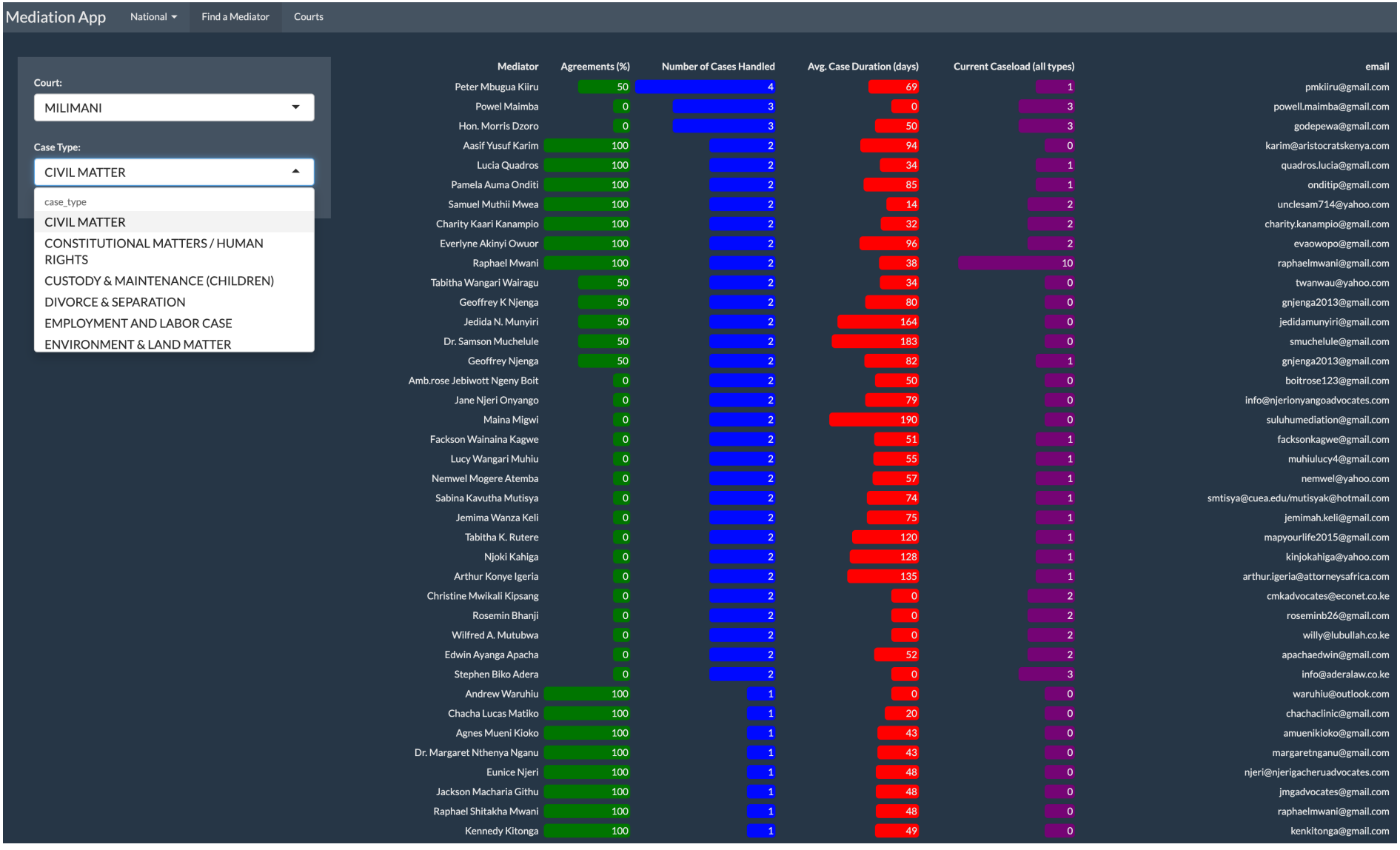
Search:

	Legal Aid Center	Number of cases	Success rate (%)	Duration of cases (days)	Avg. monthly caseload
1	CERCADO DE LIMA	2950	39	19	36
2	CHINCHA ALTA	972	47	12	19
3	MUNICIPALIDAD PROVINCIAL DE SATIPO	951	64	8	19
4	ICA	3648	60	9	36
5	AREQUIPA	1110	67	8	21
6	AMBO	85	58	11	8
7	HUANCAYO	1232	71	6	23



OR, AS MANAGEMENT TOOL, OBSERVING REGRESSIONS THAT THEY RUN

Recommending Mediators



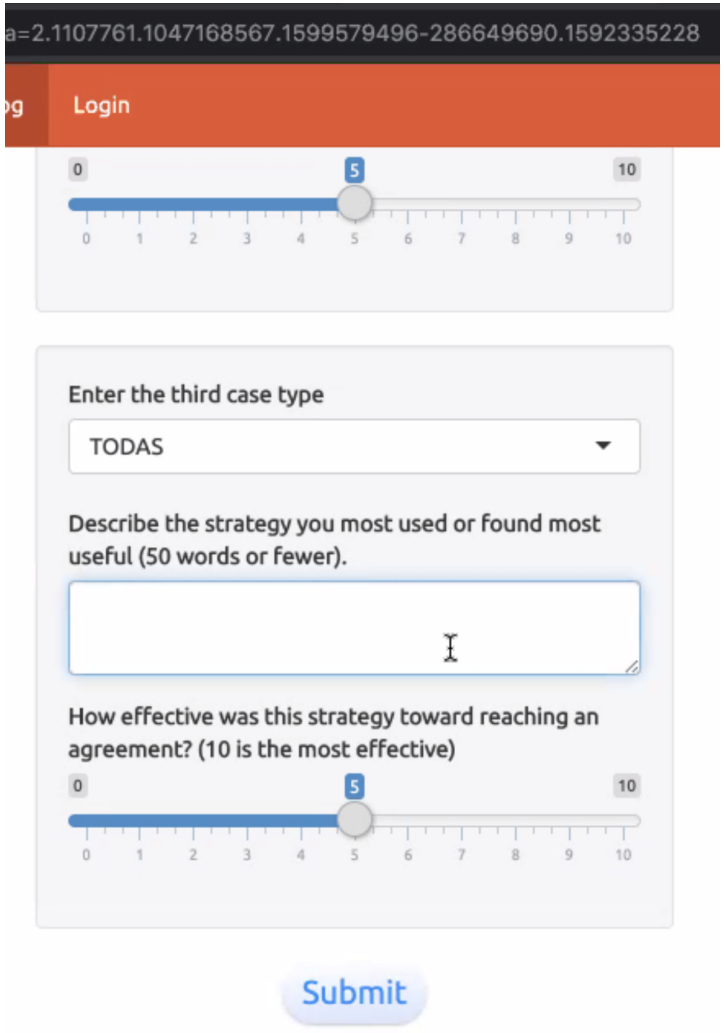
Mediator	Agreements (%)	Number of Cases Handled	Avg. Case Duration (days)	Current Caseload (all types)	email
Peter Mbugua Kiiru	50	4	69	1	pmkiiru@gmail.com
Powel Maimba	0	3	0	3	powell.maimba@gmail.com
Hon. Morris Dzoro	0	3	50	3	godepewa@gmail.com
Aasif Yusuf Karim	100	2	94	0	karim@aristocratskenya.com
Lucia Quadros	100	2	34	1	quadros.lucia@gmail.com
Pamela Auma Onditi	100	2	85	1	onditip@gmail.com
Samuel Muthii Mwea	100	2	14	2	unclesam714@yahoo.com
Charity Kaari Kanampio	100	2	32	2	charity.kanampio@gmail.com
Everlyne Akinyi Owuor	100	2	96	2	evaowopo@gmail.com
Raphael Mwani	100	2	38	10	raphaelmwani@gmail.com
Tabitha Wangari Wairagu	50	2	34	0	twanwau@yahoo.com
Geoffrey K Njenga	50	2	80	0	gnjenga2013@gmail.com
Jedida N. Munyiri	50	2	164	0	jedidamunyiri@gmail.com
Dr. Samson Muchelule	50	2	183	0	smuchelule@gmail.com
Geoffrey Njenga	50	2	82	1	gnjenga2013@gmail.com
Amb.rose Jebiwott Ngeny Boit	0	2	50	0	boitrose123@gmail.com
Jane Njeri Onyango	0	2	79	0	info@njerionyangoadvocates.com
Maina Migwi	0	2	190	0	suluhumediation@gmail.com
Fackson Wainaina Kagwe	0	2	51	1	facksonkagwe@gmail.com
Lucy Wangari Muhiu	0	2	55	1	muhiulucy4@gmail.com
Nemwel Mogere Atemba	0	2	57	1	nemwel@yahoo.com
Sabina Kavutha Mutisya	0	2	74	1	smtisya@cuea.edu/mutisyak@hotmail.com
Jemima Wanza Keli	0	2	75	1	jemimah.keli@gmail.com
Tabitha K. Rutere	0	2	120	1	mapyourlife2015@gmail.com
Njoki Kahiga	0	2	128	1	kinjokahiga@yahoo.com
Arthur Konye Igeria	0	2	135	1	arthur.igeria@attorneysafrica.com
Christine Mwikali Kipsang	0	2	0	2	cmkadvocates@econet.co.ke
Rosemin Bhanji	0	2	0	2	roseminb26@gmail.com
Wilfred A. Mutubwa	0	2	0	2	willy@lubullah.co.ke
Edwin Ayanga Apacha	0	2	52	2	apachaedwin@gmail.com
Stephen Biko Adera	0	2	0	3	info@aderalaw.co.ke
Andrew Waruhiu	100	1	0	0	waruhiu@outlook.com
Chacha Lucas Matiko	100	1	20	0	chachaclinic@gmail.com
Agnes Mueni Kioko	100	1	43	0	amuenikioko@gmail.com
Dr. Margaret Nthenya Nganu	100	1	43	0	margaretnganu@gmail.com
Eunice Njeri	100	1	48	0	njeri@njerigacheruadvocates.com
Jackson Macharia Githu	100	1	48	0	jmgadvocates@gmail.com
Raphael Shitakha Mwani	100	1	48	0	raphaelmwani@gmail.com
Kennedy Kitonga	100	1	49	0	kenkitonga@gmail.com

API to create own dashboards

Victim's defense, public defense, psychological support

Note: this comes in Non-harmonized Excel files, we do capacity-building as well as open-source tools

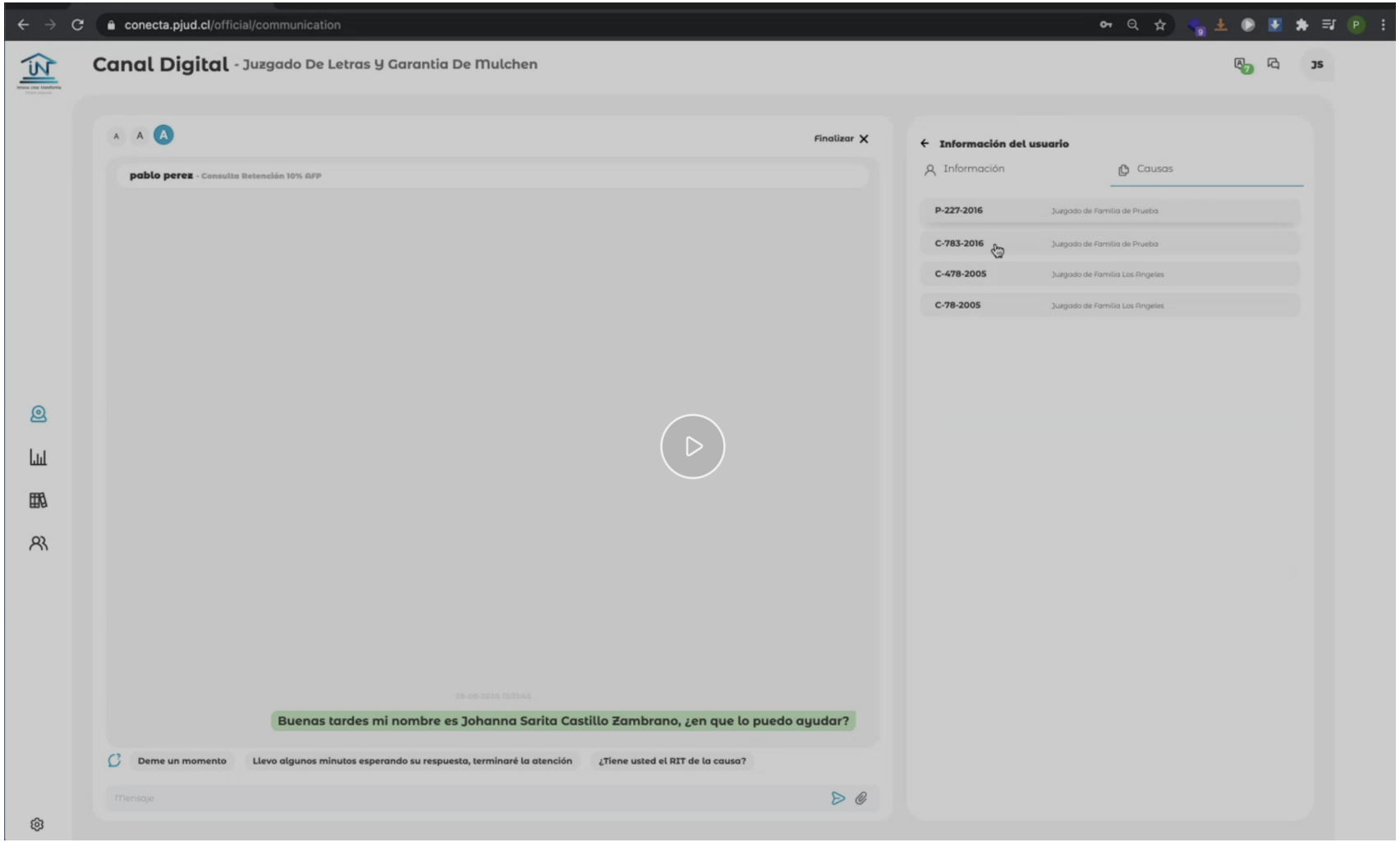
Incentivize Case Logs



Record and present correlates of improvement

E-justice meets social distancing needs

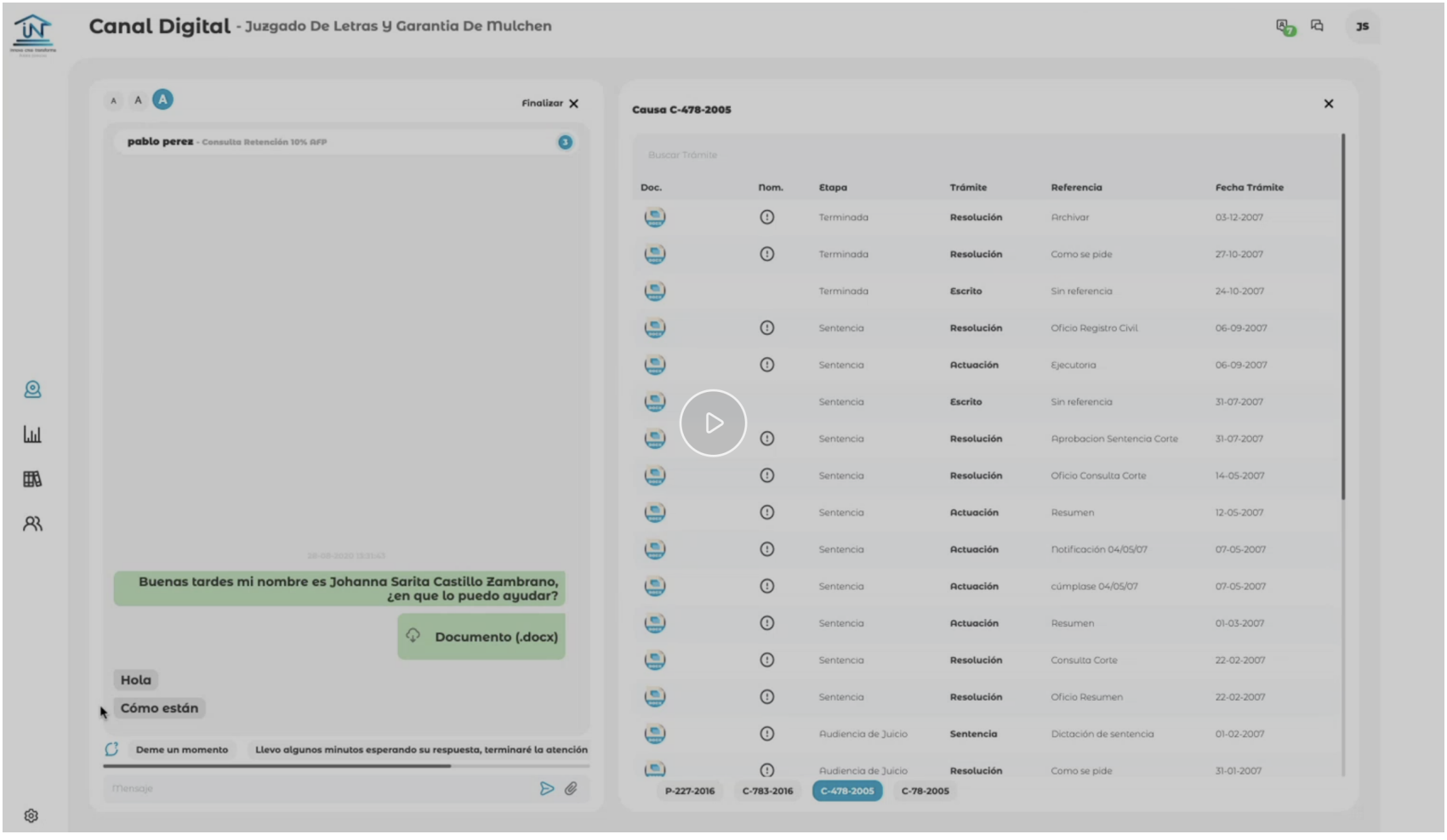
E-Justice during covid: Whatsapp



for Q&A with courts

video and audio also enabled

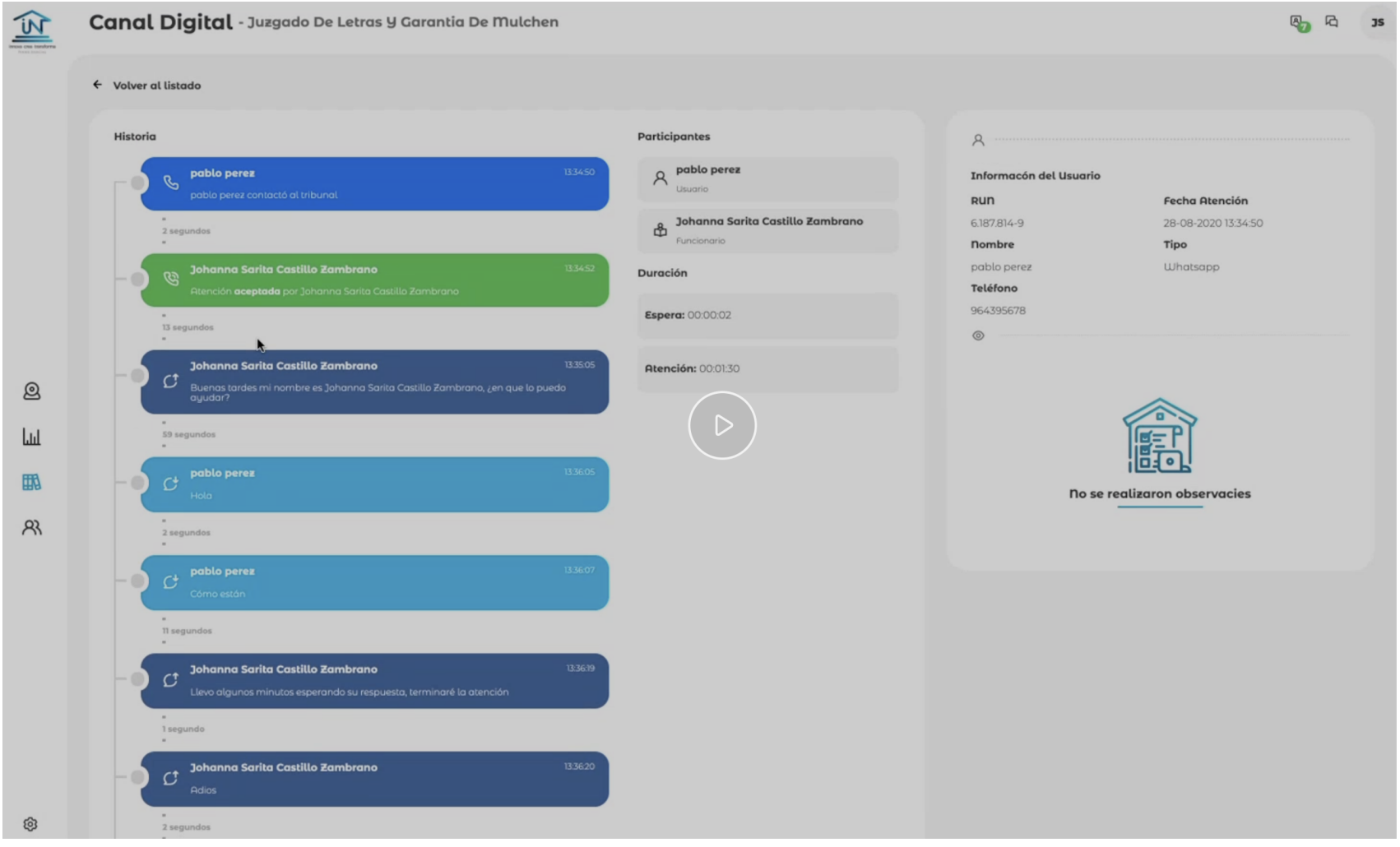
.. Receivers are given text to copy and paste (chatbots/humans?)



documents are linked

Cases are linked across calls

.. and into the courts (Digital interoperability)



facilitating downstream analysis on consequences

40% of inquiries have been related to alimony

Pilot being rolled out nationally (and advertised)

Uber-ization of Case Backlog

Interventions

- Chilean courts are affected by high imbalance of workload and little incentives to perform better.
- Telework aims to **improve performance** in congested courts by **balancing the workload** across courts, without incurring the costs of hiring new staff.
- Participants volunteer into an **incentives scheme**--receive benefits conditional on doing **the extra work** and on meeting **performance targets.**

Research Design

- We use **Randomized Controlled Trials (RCT)** with treatments:
  1. **Providing Telework**: administrative staffs and judges opt-in the program.
  2. **Receiving Telework**: receive help from another tribunal at no extra cost.
- There are 41 blocks between composed of at least three tribunals of similar competence & jurisdiction.

Stage 1: mechanism to smooth variability across jurisdictions (daily, court-specific incentive)

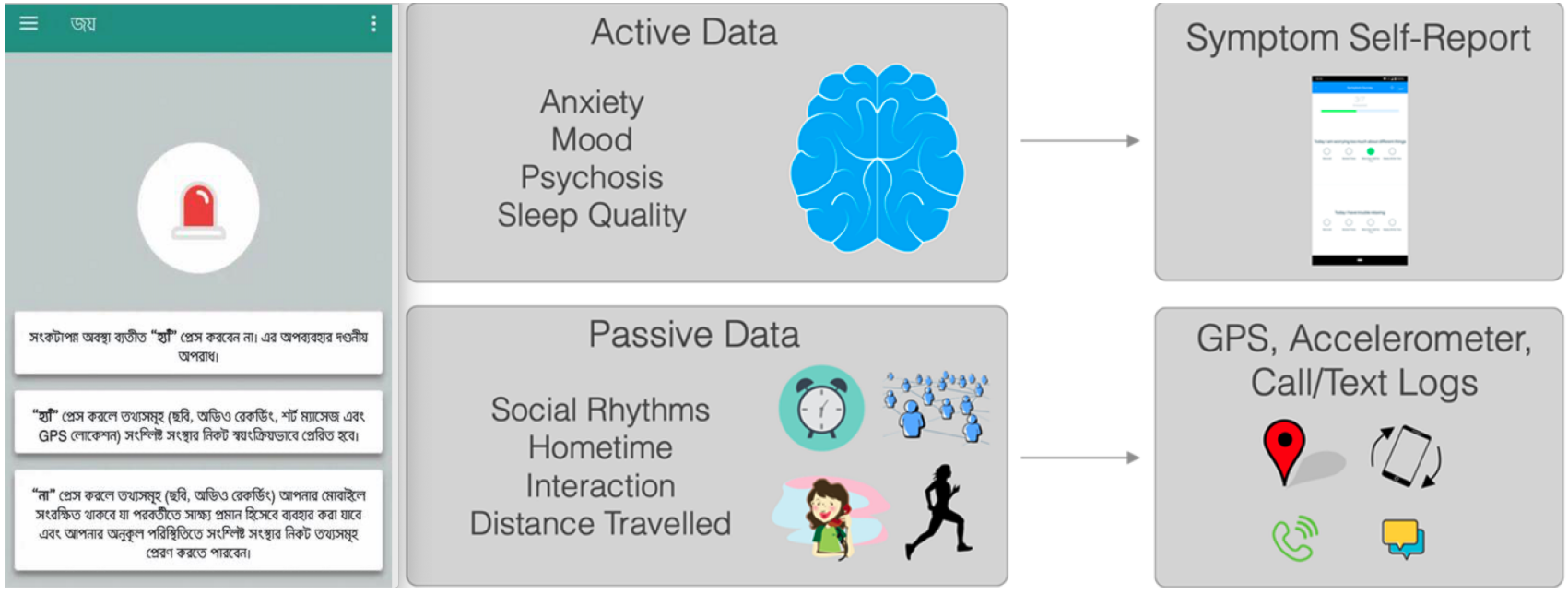
Stage 2: mechanism to smooth variability across time within jurisdictions ('uber')

Uberization address cases actually filed

What about cases that never file?

Apps for Missing Cases Bangladesh app (nationally advertised on July 2018)

smartphone app aiming to address violence against women and children



- Emergency button sends the victim's GPS, picture, and audio recording
- Passive features for additional revealed preference data

What about big data?

India E-courts

	prev. scrape	current scrape	Δ
districts	608	633	+ 04%
courts	6292	7154	+ 14%
# of cases 2015-2018 all states	40.95M	48.9M	+ 19%

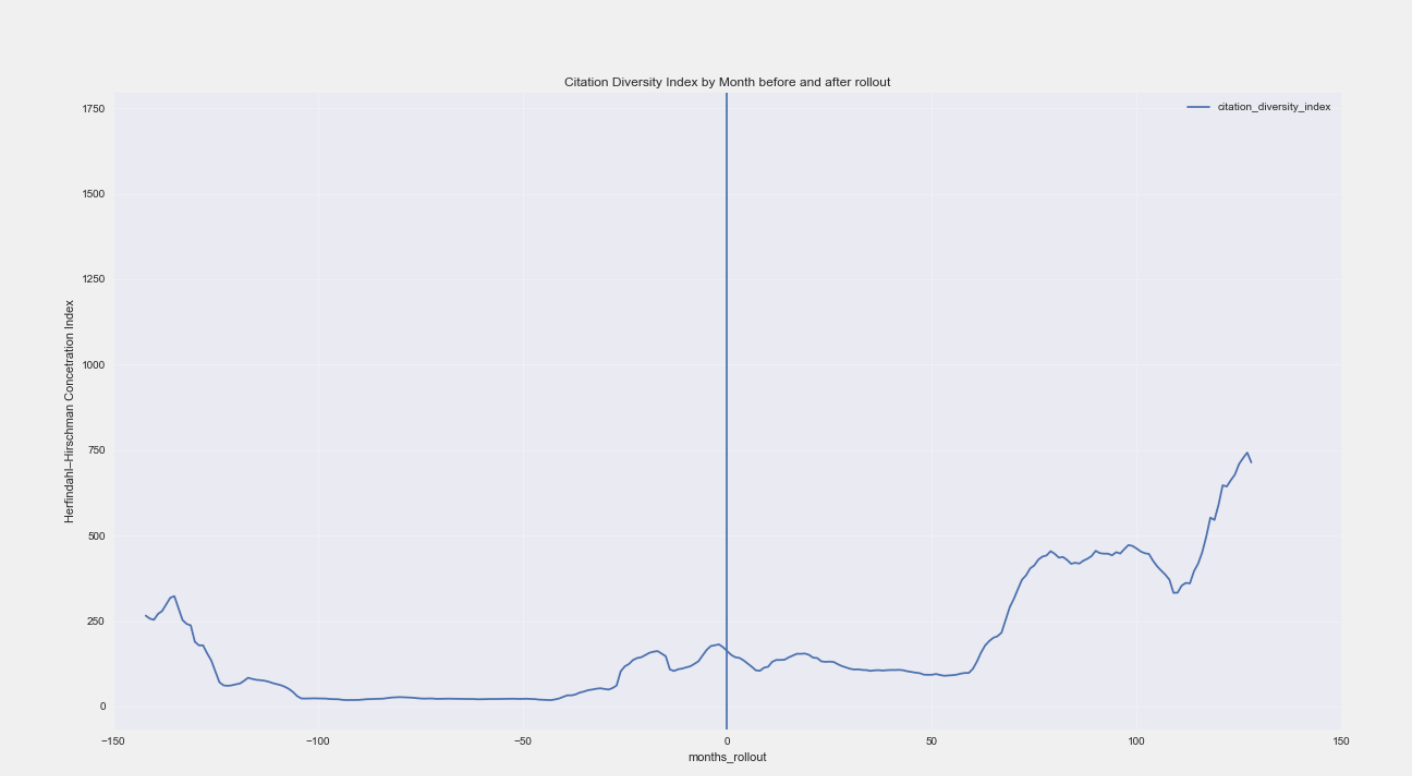
year	prev. scrape	new scrape	merged
2000	0.46M	0.53M	calculating
2001	0.71M	0.77M	calculating
2002	0.79M	0.92M	calculating
2003	0.97M	1.12M	calculating
2004	1.15M	1.31M	calculating
2005	1.49M	1.59M	calculating
2006	1.73M	1.92M	calculating
2007	1.86M	2.1M	calculating
2008	2.23M	2.49M	calculating
2009	2.69M	2.89M	calculating
2010	3.31M	3.47M	calculating
2011	2.22M	4.05M	calculating
2012	3.66M	4.92M	calculating
2013	7.26M	7.32M	calculating
2014	10.37M	10.21M	calculating
2015	8.29M	9.13M	10.74M
2016	10.88M	9.4M	12.03M
2017	10.8M	9.82M	12.83M
2018	10.98M	9.37M	13.3M
2019	0M	8.59M	8.59M

Impact of Legal Search Engines

- on how cases are decided?
- speed of resolution?
- diversity of citations?
- memes?

Impact of Legal Search Engines

Preliminary evidence that legal search engine increased HHI concentration of citations



The impact of google on wikipedia is hard to know, since wikipedia didn't exist prior to google

here, we can study common law, to see the polarization or democratization of justice

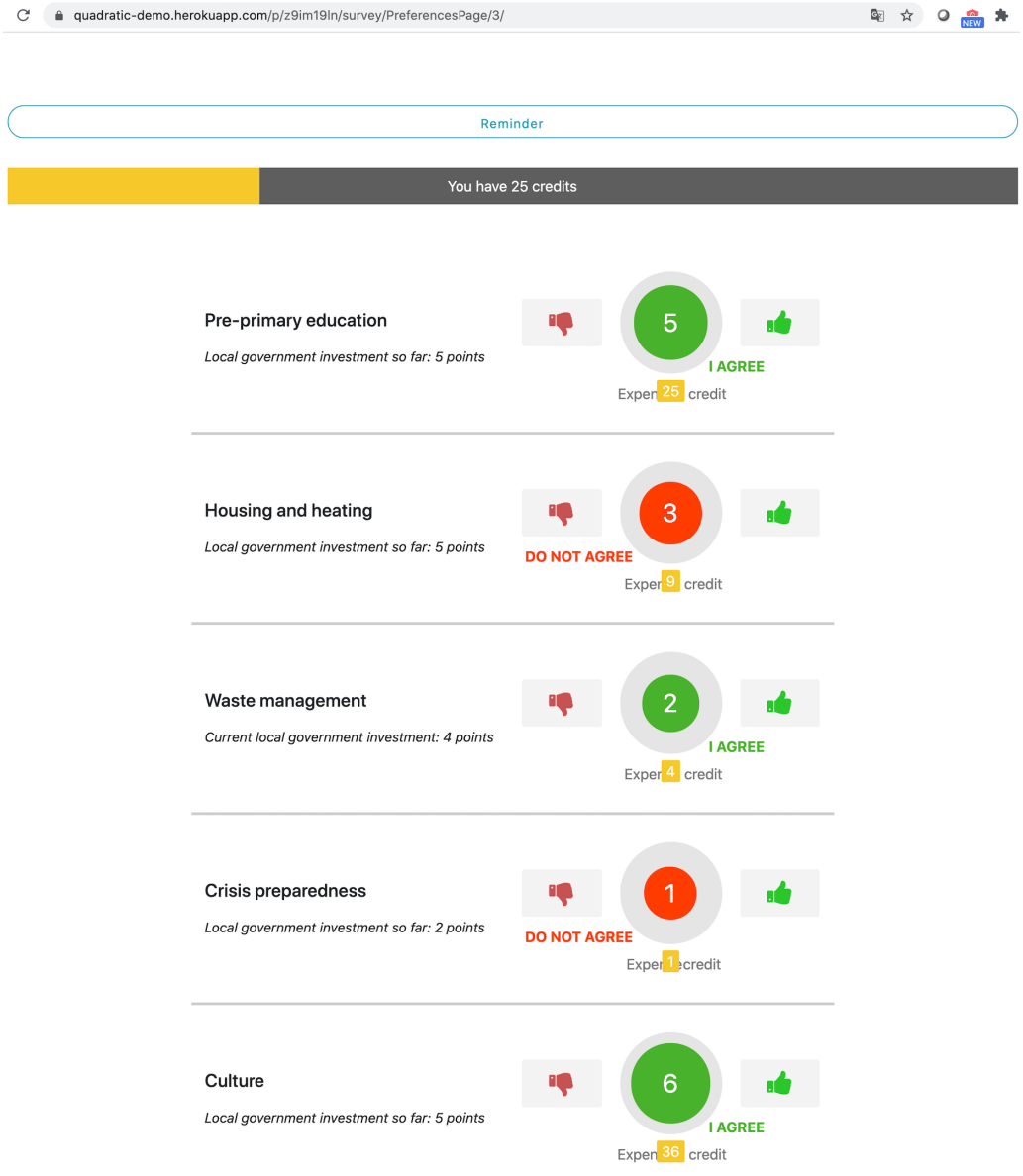
Let me turn to trust in the law

Trust in the Law

Can we move beyond likert scales of user satisfaction?

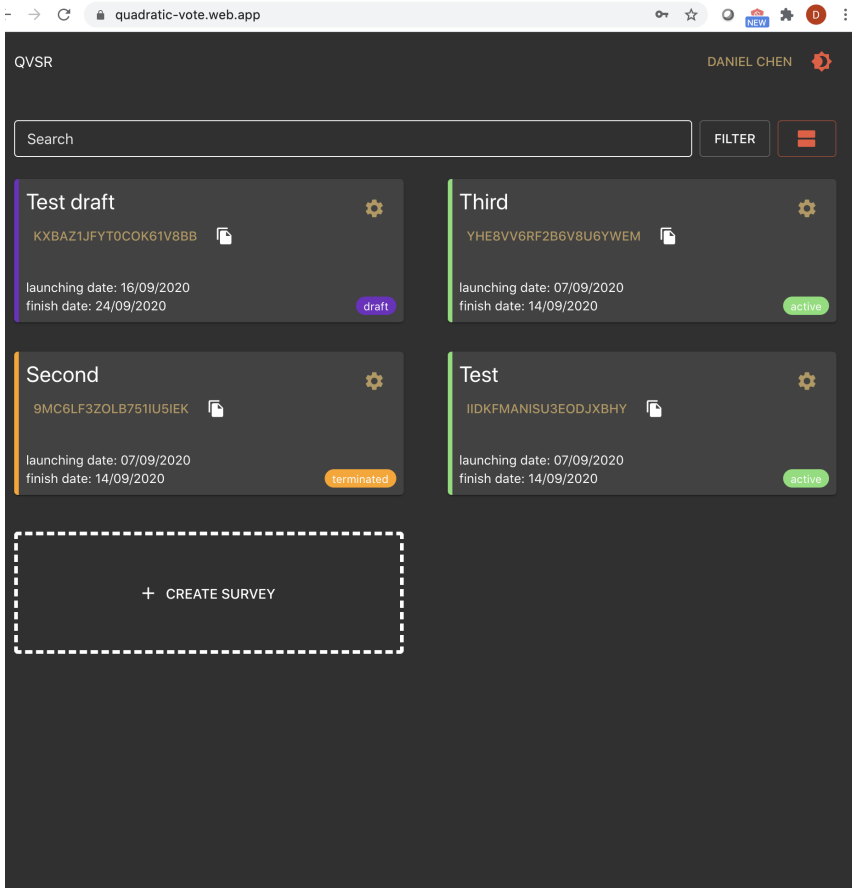
Quadratic Voting for Surveys

Estonian IE of public-facing dashboard for local government accountability



Self-service Quadratic Voting

Giving civil servants and citizens the ability to ask questions of each other



- Kenya: Propose measuring court satisfaction to better target infrastructure improvements
- Czech: Measure trust in the law (through revealed preference questionnaires)
  - Does trust correlate with legal compliance?
  - Do revealed preferences predict recidivism beyond psychometric surveys?
- Multi-country: How do individuals trade-off indicators of court quality?

Looking Ahead

- Country counterparts have asked
  - e-arbitration
  - AI for scheduling
  - AI in civil justice (to manage evidence)
  - blockchain technologies for follow-up of compliance of cases
  - online judicial auction platform (ebay for bankruptcy judges)

Training

- Theory vs. case-based teaching
  - vs. personalized case-based teaching - using own decisions
- Social-emotional learning interventions
  - self-affirmation, advice giving, growth mindset, etc.
- Monitoring & debrief $\approx$ "community of practice"
  - of teachers
- Empathy training (Pakistan)
  - emotional intelligence
- Algorithmic search
  - do off-the-shelf search algorithms lead to polarization vs. de-polarization ML
- Legal Aid / Mediation
  - knowledge of one's effectiveness as public defender

State of the Literature

- Rule of Law $\Longrightarrow$ Contract Enforcement $\Longrightarrow$ Economic Growth
  - Reforms and Training to Speed Justice
  - Random Case Assignment or RCTs
- Governance $\Longrightarrow$ Trust $\Longrightarrow$ Economic Growth
  - Disclosure and Accountability
  - Shinyapps and Adaptive A|B RCTs

Strengths of DE JURE Program @ DIME

- Design
- Deploy
- Evaluating effects of justice reforms
- Developing technologies to do so
- Dialogue with country partners