Lecture 13
Rationalist explanations for conflict

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Why is there so much violence, and why does it rise or fall?
International war, civil war, one-sided state violence, and communal violence

Our World in Data Global deaths in conflicts since the year 1400

Each circle represents one conflict. [Data from the *Conflict Catalog* (1400-2000)]
The **size** represents the absolute number of fatalities (military + civilian fatalities)
The **position** on the y-axis represents the fatality rate* (military + civilian fatalities)

Military + civilian death rate* for 1400-2000 [Data from *Conflict Catalog*] – 15 year moving-average

Military death rate* for 1946-2013 [Data from the PRIO Instiute]

* All death rates are calculated as the share of fatalities relative to the world population at the time (rate of deaths per 100,000 people).
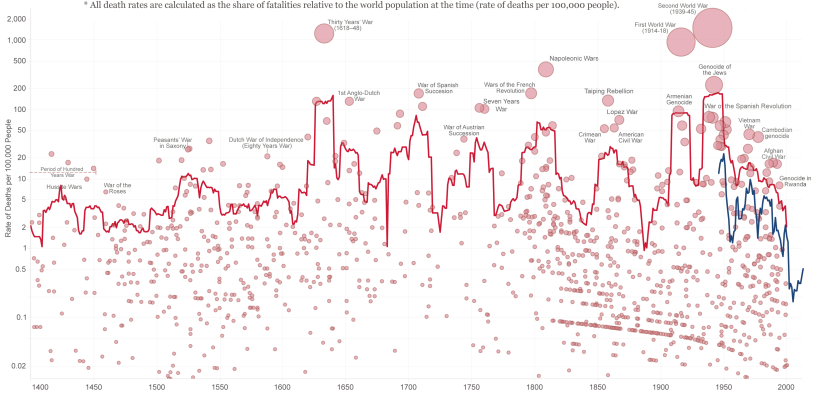
Data sources: Battle Deaths Dataset v 3.0. published by the PRIO Institute and Conflict Catalog by Peter Brecke for data on battle deaths. And world population data from HYDE and UN.
This is a data visualisation from OurWorldInData.org. There you find more visualisations on this topic.
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Rationalist conflict

Economic shocks and conflict

A simple illustrative bargaining model
   The Coase theorum in action
   Limited transfers and commitment problems
   Incomplete information (very briefly)

A micro-level illustration: Blattman et al 2014, 2018: Engineering informal institutions

Research frontiers

The empirical conflict literature kicks off with the advent of new cross-national data

▶ Collier & Hoeffler and (in response) Fearon & Laitin make the seminal contributions looking at the correlates of conflict

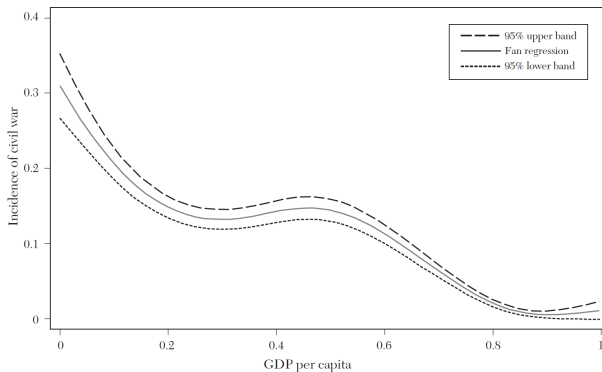▶ Preoccupied with correlations between war and incomes, growth, inequality, and ethnic fractionalization

Figure 3: Incidence of Civil War by Country Income per Capita, 1960–2006

Rainfall shocks and civil war
Miguel, Satyanath & Sergenti 2004

▶ After a long line of poorly-identified, kitchen sink-style cross-national regressions, this was a breakthrough in credible causal inference

▶ Instrument was semi-weak and exclusion restriction was later contested, but reduced form relationship with rainfall was robust
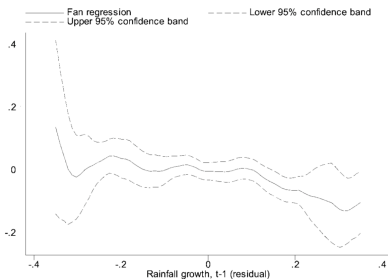

Fig. 2.—Current likelihood of civil conflict (≥25 battle deaths) on lagged rainfall growth. Nonparametric Fan regression, conditional on current rainfall growth, country fixed effects, and country-specific time trends.
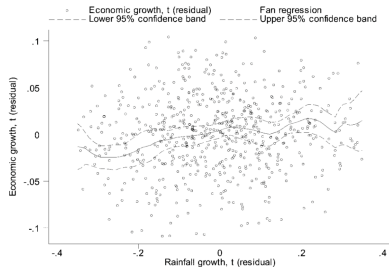

Fig. 1.—Current economic growth rate on current rainfall growth. Nonparametric Fan regression, conditional on country fixed effects and country-specific time trends.

More papers established causal links from incomes and revenues to conflict, pushing data down to district levels

▶ Dube Vargas 2013: Battles and attacks in Colombia − associated with coffee prices, and + associated with oil prices

▶ Interpreted through the lens of *opportunity cost of conflict*
  ▷ Rising coffee prices increased local real wages item Rising oil prices decreased local wages

Paramilitary attacks

Paramilitary attacks
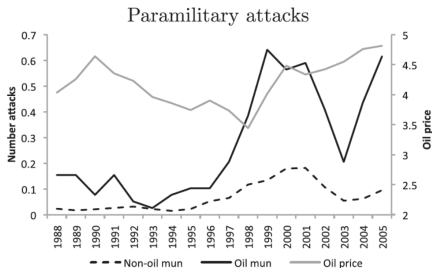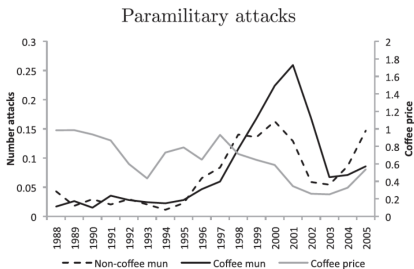
Commodity price shocks have a number of nice features

▶ Unlike rainfall shocks, they have a large effect on national incomes
  ▷ 1s.d. price fall leads to 36% fall in GDPpc (Bazzi & Blattman 2013)
▶ Most countries' exports are concentrated in 1–3 commodities
▶ Most countries are price takers on the world market
▶ Most shocks are temporary
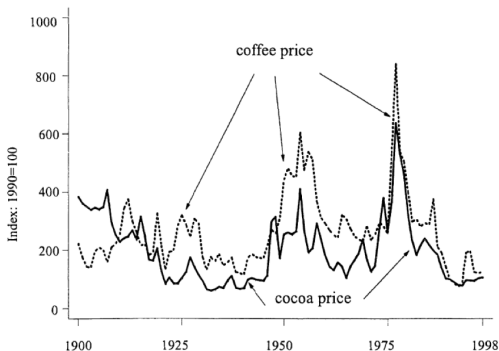
Recent papers have pushed to more granular levels and expanded range of theories (e.g. Berman et al 2017)

▶ Map mining sites to a fine spatial grid in Africa, and look at effect of price swings in general and in mining sites

▶ Several reasons why conflict increases around mines when prices rise:

▷ Value of capturing prize; source of rebel funding; weaker or less accountable local states; and a possible source of grievances

Estimator	LPM					
Dependent variable	Conflict incidence					
Sample	All	$V(M_{kl}) = 0$		All	$V(M_{kl}) = 0$	
	(1)	(2)	(3)	(4)	(5)	(6)
mine > 0	0.112 (0.065)					0.048 (0.065)
ln price main mineral	−0.029 (0.032)					0.028 (0.019)
ln price × mines > 0	0.086 (0.034)	0.072 (0.020)	0.060 (0.021)		0.085 (0.024)	0.108 (0.041)
ln price × mines > 0 (neighboring cells)			0.021 (0.006)			
ln price × mines > 0 (ever)				0.045 (0.014)		
Country × year fixed effects	Yes	Yes	Yes	Yes	No	No
Year fixed effects	No	No	No	No	Yes	Yes
Cell fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Neighborhood fixed effects	No	No	No	No	No	Yes
Observations	143,768	142,296	127,974	143,864	142,296	17,360

But one could ask: Where is the Coase theorum?

▶ Coase theorum:
  ▷ Rational agents who can bargain freely (without transaction costs) and who can make unrestricted transfers to each other, will negotiate an efficient, surplus-maximizing outcome
  ▷ The initial allocation of bargaining power will affect the distribution of the outcomes, but not the overall efficiency

▶ Fighting is extremely risky and costly so:
  ▷ Why don't states and challengers share the revenue windfall?
  ▷ If initial resource richness weakens the state but not the challenger, why doesn't this simply result is greater corruption or payoffs to the challenger group?

After all, aren't many weak state regimes efficiently avoiding conflict through a patrimonial splitting of the spoils?
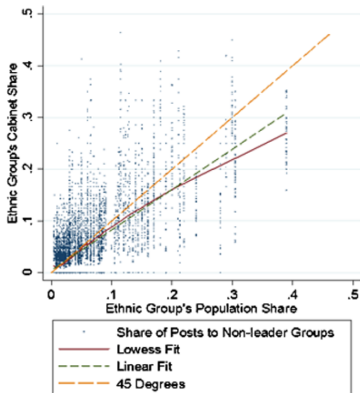

FIGURE 2.—Allocation of cabinet shares and population shares, full sample, 1960–2004.

Figure: Francois et al. 2015 show that African ruling coalitions are large and that political power is allocated proportionally to material bases of power (e.g. population shares across ethnic groups)

Rationalist explanations for war

▶ A large "rationalist conflict" literature treats conflict as strategic, often through the lens of bargaining

▶ It focuses on violations of the Coase theorem, without sacrificing rationality or introducing non-standard preferences or agency problems

▶ Tends to be occupied with three main violations
  1. **Lack of credible commitment** to make future transfers and/or not to attack in the future
  2. **Asymmetric information + incentives to misrepresent** – Fighting is a way to identify weak from strong opponents
  3. **Agency problems** – Deciders do not internalize the costs of war, or have privatized the benefits (e.g. Jackson & Morelli 2007)

A disconnect

▶ The empirical and formal theory literatures on conflict have not been in close conversation

▶ Many empirical papers view actors as maximizing against constraints in an essentially nonstrategic environment, e.g.
  ▷ Individuals: Armed fighting as an occupational choice
  ▷ Warlords: A prize as something to be won in a costly battle

▶ So what's going on?

One answer: Most empirical papers are not actually studying the causes of conflict, but rather the intensity

▶ Most within country studies study the effect of shocks on the *intensive margin* of conflict
▶ Thus it makes sense to focus on how local conditions shape:
  ▷ Incentives for and ability to recruit, or
  ▷ Attempts to capture valuable point resources

Paramilitary attacks

Paramilitary attacks
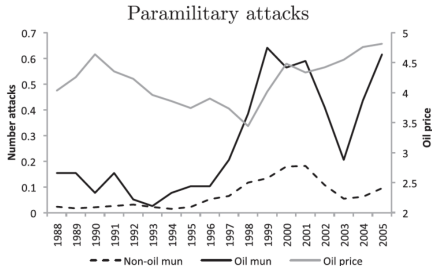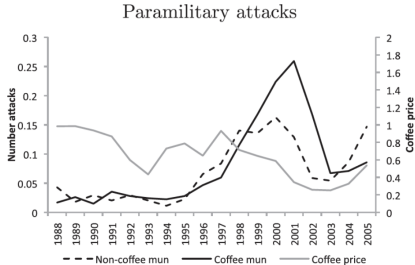
Many papers conflate onset and continuation of conflict

▶ *Incidence* = 1 if new or ongoing year of conflict, 0 otherwise
  ▷ Regressions with incidence as the dependent variable are constraining the regression coefficient to be the same for *onset* and *continuation*
▶ Cross-nationally, little relationship between shocks and conflict onset
▶ It is all in continuation and intensity (Bazzi & Blattman 2016)

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Another answer: Economic shocks are prompting bargains to break down

▶ Resource shocks could create commitment problems

▶ Large price swings or major discoveries can drastically change productive power and revenues

   ▷ Opposition (potential insurgents or coup plotters) demand a share in proportion to their strength

   ▷ Most of the time, revenues are shared among powerful groups

▶ But with a large enough price swing, it may be difficult to credibly commit

   ▷ If ownership is naturally concentrated, it may be difficult to commit to a stream of transfers

   ▷ Capture could provide one group with enough might to permanently weaken or eliminate other groups

   ▷ Bargains be most difficult where coalition maintenance is hardest — e.g. In places with highly concentrated power (e.g. weak executive constraints)

Rationalist conflict

Modest goals

▶ Baliga teaches a (recommended) PhD course at Northwestern on a variety of conflict models
  ▷ We're only going to skim the surface today
▶ What I think are the most original and important insights form his simple model and summaries:
  ▷ The commitment problem as a problem of limited transfers
  ▷ Relatively simple, consistent framework for thinking about the core problems and the frontier topics (salami tactics, fighting while bargaining)
▶ I'm going to aim to highlight basics and briefly discuss what I think are exciting frontiers of theory development

First: The Coase theorem in action
Baliga & Sjostrom 2013 model of guns & butter

- Risk neutral players $i \in \{N, S\}$. (North and South)
- Player i has resource x_i can be used to produce:
  - ▷ Guns $g_i \geq 0$
  - ▷ Butter $b_i \geq 0$
- Budget constraint:

$$g_i + b_i = x_i$$

Winner takes all situation

▶ If there is a war, the country with more guns is more likely to win

  ▷ The winner takes all available butter, $b_N + b_S$
  ▷ The loser gets nothing

▶ No war can happen if $g_N = g_S = 0$

▶ Contest success function: Player i wins the war with probability

$$\rho(g_i, g_j) = \frac{g_i}{g_i + g_j}$$

▶ Crucially: Each player suffers c_i when a war happens

Some additional simplifying assumptions

▶ South is rich and has a high cost of war
▶ North is poor and has a low cost of war
▶ $x_N < c_S$: North does not have enough resources to make war worthwhile for South
▶ $x_S > c_N$: South has enough resources to (possibly) make war worthwhile for North

Game Structure
Take-it-or-leave-it offer

▶ Stage 1: Productive decisions
  ▷ Each player chooses g_i and b_i subject to $g_i + b_i = x_i$
  ▷ Decisions are simultaneous and publicly observed.
▶ Stage 2: Bargaining with transfers
  ▷ South proposes to transfer t butter to North, $0 \leq t \leq b_S$
  ▷ North accepts this proposal or declares war
  ▷ i.e. All these models assume that the default condition is conflict

With complete information and unlimited transfers, there is arming but no fighting

▶ North will accept South's proposal if North's consumption of butter exceeds its expected payoff from war

$$b_N + t \geq \frac{g_N}{g_S + g_N}(b_S + b_N) - c_N$$

▶ South's problem
  ▷ Propose the smallest t that satisfies the above appeasement constraint

$$t = \frac{g_N x_S - g_S x_N}{g_S + g_N} - c_N$$

▶ In equilibrium,
  ▷ $g_N > 0$: There is always (inefficient) arming, otherwise South provides no transfer
  ▷ $t > 0$: There is appeasement of the actor with a lower cost of war (a version of the Coase theorum)
  ▷ $g_N = x_N$: In this example, North puts all of its resources into arming

An "extreme" example

▶ Suppose North is poor:

$$x_N < \frac{1}{3}x_S$$

▶ North has a low cost of war:

$$c_N < \sqrt{x_N(x_S + x_N)} - 2x_N$$

▶ Equilibrium:

▷ South chooses:

$$g_S = \sqrt{x_N(x_S + x_N)} - x_N$$

▷ North chooses:

$$g_N = x_N$$

▷ South transfers:

$$t = \sqrt{x_N(x_S + x_N)} - x_N - c_N > 0$$

▷ North accepts and hence no war

▶ Note: North puts all resources in producing guns, and the equilibrium transfer is independent of South's cost of war

Bargaining breakdown

▶ Most **commitment problems** are some version of one of the following

    1. There are limits on how much can be transferred
    2. Or transfers can create discontinuous changes in the contest success function

▶ Most **incomplete information** accounts are some version of a semi-separating equilibrium

    ▷ In situations where North is probably a weak type who is just bluffing, South takes a risky gamble and refuses to appease

▶ Many models also have the features where the lower the cost of war, the more likely is a given bargaining failure

    ▷ Thus any failure of a decision-maker to internalize costs of war (e.g. **agency problems**) will tend to exacerbate bargaining failures

Example: The 2003 Invasion of Iraq
e.g. Lake 2011, Fearon 2013, Debs & Monteiro 2014, Krainin 2017

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e.g. Lake 2011, Fearon 2013, Debs & Monteiro 2014, Krainin 2017

► Commitment problems

   1. WMD would shift in geostrategic power, and US can act to avert this erosion in bargaining power
   2. Raises the question: Why couldn't Saddam commit not to develop WMD?

► Incomplete information

   ▷ Difficult to observe existence of WMD, level of resolve
   ▷ Reputation management

► Stories that involve agency problems

   ▷ American interests in oil (e.g. Halliburton)
   ▷ George W Bush avenging father
   ▷ Electoral returns from warfare

Rationalist conflict

Most commitment problem stories implicitly involve some argument for limited current transfers and inability to commit to future transfers

Baliga & Sjostrom 2013 (Section 3.3) illustrate with two changes to the previous model:

1. The payoff to winning is now all the butter plus a fraction η of the productive resources of the losing side, e.g. North's payoff is:

$$b_N + b_S + \eta x_S$$

2. $t \leq b_S$: Transfers cannot exceed current output, because
   $\triangleright$ Productive asset x_S cannot be transferred without war
   $\triangleright$ South cannot credibly commit to make transfers in future, and cannot borrow sufficiently

There is no war if there are no practical limits on transfers

▶ Now, North accepts South's proposal if

$$b_N + t \geq \frac{g_N}{g_S + g_N}(b_S + b_N + \eta x_S) - c_N$$

▶ Consider the simple case where North is relatively poor and c_N is small, then (as above) North sets $(b_N, g_N) = (0, x_N)$ and the appeasement constraint above is satisfied when

$$t \geq \frac{x_N}{g_S + x_N}[b_S + \eta x_S] - c_N$$

▶ The right hand side of this appeasement condition is large (i.e. greater than b_S) when η is large (since when $\eta = 0$ we revert to the prior case where there is no commitment problem because current transfers never need to exceed b_S)

More elaborate examples of commitment problems

- ▶ "Preventative war"
  - ▷ North powerful now (high x_N), but expects to lose power in future
  - ▷ By attacking now, North expects to receive a better outcome than after South is strong and can negotiate harder terms
  - ▷ Crucial to this story is the notion of limited transfers
    - ▶ South cannot transfer enough now to appease North
    - ▶ Moreover, South cannot transfer productive resources or otherwise prevent the power shift from occurring

- ▶ "Indivisibilities"
  - ▷ There is a resource or some aspect of x that cannot be divided
    - ▶ e.g. Sacred sites (Holy Mount?) or strategic territories (Golan Heights?)
  - ▷ Again this is a form of the limited transfers argument, perhaps one where t is discontinuous over some range and South prefers to go to war than to give away all of it

Rationalist conflict

Incomplete information leads to a signaling game
Baliga & Sjostrom 2013's simple illustration

▶ Essential point: Under imperfect information, war is a risky gamble that reveals the strength of the foe

▶ With probability p, North is a tough type with cost $c_N < x_S$ as before, but with probability $1 - p$, North is a weak type with cost $\bar{c}_N > x_S$

▶ If p is close to one, there is a pooling equilibrium where South chooses to appease a probably strong North

▶ If p is smaller, there is a risk of warfare

  ▷ There is no pure strategy separating equilibrium
  ▷ Since North is probably a weak type who is just bluffing, South takes a risky gamble and refuses to appease
  ▷ The more unbalanced is the situation, in the sense that South is relatively more productive than North (i.e. $x_S - x_N$ is big), the more likely South is to win a war, the more likely South is to call North's bluff, and the more likely it is that a war occurs

A current theoretical frontier: Fighting while bargaining

▶ One criticism of incomplete information stories is that they should only explain short wars
  ▷ Weak types should be revealed fairly quickly, at which point Coase theorum should kick in
▶ As it happens, skirmishing and short conflicts are very common in history, and so this is a useful contribution
▶ But how to explain long wars?

▶ Fearon 2013:
  1. Fighting as screening: Private information is about how long one side can hold out in a war leads to fighting as screening
  2. Fighting as signaling (reputation building): Expectation of having to fight future conflicts with other enemies is an added incentive for weaker types to bluff and to fight

Another theoretical frontier: N-player bargaining

▶ Violence is not a equilibrium in 2-player games
▶ In N-player games, there can be multiple equilbria, including violence
▶ With three or more players they may start forming coalitions, and a theory should predict what coalitions will form or break – e.g. Peloponessian War
▶ May be logically impossible to design any one transfer institution that deals with all potential threats at the same time (Ray 2009)
▶ Currently an opportunity for theorists familiar with coalition dynamics to introduce latest development to conflict literature
▶ In some ways this resembles a commitment problem, because actors cannot write binding contracts not to form a coalition or split
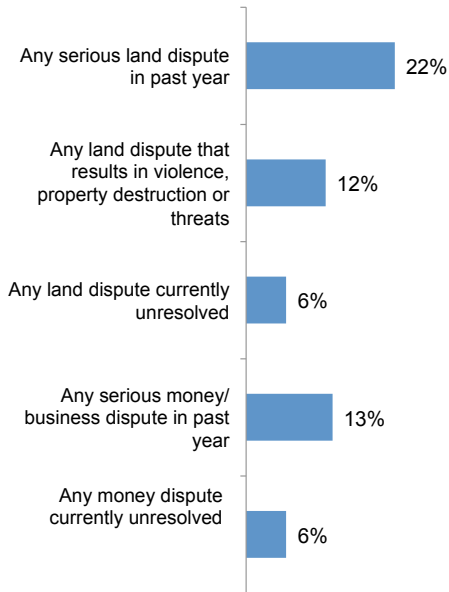
Rationalist conflict

Setting: Rural Liberian towns and villages, 2008–12

Glenna Gordon

Like many rural areas, property disputes are endemic
2010 survey of 5000 residents of 246 rural Liberian communities

e.g. Someone squatting in your market stall after the war

Potential explanations

- ▶ Commitment problems
  - ▷ Could compensate squatter for structure, or squatter agrees to vacate next year
  - ▷ But credit constraints bind
  - ▷ And no informal norms or formal institutions to enforce this agreement
  - ▷ Problem is too many informal institutions!
- ▶ Imperfect information
  - ▷ Many things unknown about the squatter (especially non-coethnics): value of structure, outside options, land availability, how mean his family is, etc
- ▶ Non-standard, non-rational behaviors
  - ▷ Anger and other emotional reactions to affronts or injustice
  - ▷ Miscalculation (overconfidence, overprecision, ...)

An informal forum (one of many)

UN and government intervention: Mass education in alternative dispute resolution

Promote new skills, practices and norms to help make and sustain bargains

- ▶ Facilitate commitment
  - ▷ Foster norms around specific types of forums
  - ▷ Norms that discourage defection from a forum
  - ▷ Mediators, leaders, community norms informal enforcers of agreements
- ▶ Reduce asymmetric information
  - ▷ Teach communication skills (e.g. active listening, seeing from other side)
  - ▷ Inculcate norms of information sharing, discussion
  - ▷ Encourage others to mediate
- ▶ Encourage people to behave more rationally
  - ▷ Techniques for managing anger
  - ▷ Encourage norms of non-violence

1/6 of adults received 8 days of training and norms messaging each over 2–3 months

Norm change takes identities, status & salience as given
But tries to shape prescriptions, directly or through influencing actions or actions of others

$$U_j(a_j, a_{-j}, y_J, \kappa_J, I_j \mid \psi_j)$$

$$I_j(a_j, a_{-j}; c_j, \epsilon_j, P_J).$$

- ▶ **Others' observed action** a_{-j}
- ▶ Group status y_J
- ▶ Group salience κ_J
- ▶ Internalized values/preferences of group J, ψ_j
- ▶ Own assignment/association with group c_j
- ▶ Own characteristics ϵ_j
- ▶ **Prescriptions of group** P_J
- ▶ Existence of identity group I with prescriptions P

Program impacts after 1 and 3 years

Dependent Variable	1-year endline				3-year endline			
	Control mean	ITT	SE	ITT / control mean (%)	Control mean	ITT	SE	ITT / control mean (%)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Outcomes for all residents (N=4,011)								
Any serious dispute	0.221	0.003	0.016	1.2	0.087	0.008	0.011	9.3
Any unresolved dispute	0.07	-0.02	0.008**	-28	0.024	0.002	0.005	6.4
Any dispute with threats, property destruction, or interpersonal violence	0.122	-0.01	0.012	-8.1	0.041	-0.012	0.006**	-28.4
Conditional on a dispute occurring (N=353)								
Length of dispute (months)					13.247	3.628	2.885	27.4
Resolved dispute	0.684	0.072	0.027***	10.5	0.668	-0.024	0.046	-3.6
Resolved via informal mechanism	0.193	0.032	0.024	16.4	0.251	0.031	0.051	12.3
Any threats, property destruction, or interpersonal violence	0.554	-0.024	0.035	-4.3	0.476	-0.193	0.047***	-40.6
Any property damage or violence	0.411	-0.037	0.03	-9.1	0.243	-0.091	0.042**	-37.5
Any threats	0.515	-0.013	0.035	-2.5	0.408	-0.159	0.048***	-38.9
Any property destruction	0.186	-0.051	0.025**	-27.4	0.114	-0.068	0.027**	-59.3
Any violence	0.349	-0.022	0.028	-6.3	0.202	-0.057	0.042	-28.5

Figure: Program impacts on number, length, severity, and resolution of land disputes

Heterogeneity by political connections

Dependent variable	Political Connectedness		
	Coeff. on treatment	Coeff. on treatment-covariate interaction	Sum
	(1)	(2)	(3)
Security rights index	-0.124	0.14	0.015
	[0.037]***	[0.058]**	[0.047]
Improvement index	-0.045	-0.022	-0.067
	[0.031]	[0.054]	[0.046]
Size of plot	2.214	1.488	3.702
	[1.136]*	[1.956]	[1.653]**

Figure: Heterogeneity in land security and investment, 3-year endline

Moderate evidence of generalized norm & skill change

Dependent Variable (z-score)	Control Mean	ITT	Control Mean	ITT
	(1)	(2)	(3)	(4)
Bias index	-0.009	-0.003	0.068	-0.107
		[0.046]		[0.088]
Defection index	-0.043	0.042	0.004	-0.1
		[0.041]		[0.079]
Empathy index	0.002	0.031	0.067	-0.022
		[0.033]		[0.067]
Forum choice index	-0.028	0.03	-0.048	0.005
		[0.037]		[0.088]
Managing emotions index	-0.031	0.069	0.032	-0.039
		[0.031]**		[0.078]
Mediation index	0.003	-0.061	0.006	-0.036
		[0.037]*		[0.074]
Negotiation index	0.002	0.003	0.047	-0.059
		[0.027]		[0.069]

Figure: Effect on norms, attitudes and skills, 3-year endline

Rationalist conflict

In some ways this has been a "background" lecture than a discussion of frontiers

▶ The widest and most promising frontier may be the extension of these "standard" models and empirical approaches to non-standard explanations of conflict (next two classes)

▶ Probably the most under-researched "solution" to conflict is the state and formal/informal institutions
  ▷ e.g. See Pinker (2011) or forthcoming Acemoglu & Robinson book

▶ There are also some areas of rationalist conflict theory waiting to be further worked out
  ▷ Mutual optimism (e.g. Ramsey 2017)
  ▷ N-player bargaining, coalition formation, spoilers (e.g. Ray & Vohra 2014)
  ▷ Agency problems (e.g. Jackson & Morelli 2007)

Research frontiers

▶ There is strikingly little empirical testing or exploration of bargaining and rationalist breakdowns — a lot of the evidence is circumstantial correlations

▶ May be opportunities or clues for research ideas in
  ▷ Lab experiments
  ▷ (Non-violent) negotiations literature
  ▷ Labor strikes literature

▶ Arguably there is much more room for testing interventions, especially ones amenable to large(ish)-N data analysis
  ▷ Credit and contracts in reducing commitment problems
  ▷ Local institutional reforms
  ▷ Mediation

▶ Arguably there are some ongoing lines of research that should get less emphasis in future
  ▷ Economic shocks and conflict
  ▷ Ethnic divisions and conflict