Law and Finance Matter: Lessons from Externally Imposed Courts

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Do law and finance matter for development?

- Abundant interest in law-finance-growth
  - e.g., La Porta et al. (1997-2008), King and Levine (1993), etc.

- Empirical problems:
  1. Countries are dramatically different
  2. Institutions emerge endogenously

⇒ Many explanations for wide divergence in outcomes
  - e.g., Sala-i-Martin et al (2004)

- Within-country setting has advantages
  - Barro and Sala-i-Martin (1992), Berkowitz et al. (2014)

This study

- The setting: Native American reservations
  - Separate constitutions, elected officials, and courts
  - Similar on other dimensions (trade, culture, institutions)
  - 129 reservations (with residents) – across 23 U.S. states

Reservation courts

- Externally imposed by US Congress
  - In 1953, Congress “assigned” some reservations to state courts (Public Law 280, PL280)
  - Assignment unrelated to financial or economic development
  - Similar mortgage markets (Parker, 2012) and banking activity prior to PL280

Why does court assignment matter?

- Clearer precedent, more predictable contract enforcement under state courts
  - Mudd (1972), Anderson and Parker (2008)
  - *Kinnerly v. Montana (1971)*: The inability to use state courts had the result "… to dry up credit sources throughout the state to responsible Indian citizens."

Empirical strategy

- Map county-level data on credit markets and economic activity to the reservation level
  - Use adjacent, non-reservation counties as controls
  - PL280 assigns variation in legal enforcement to reservations

Main findings

- Credit markets are stronger under state courts
  - more small business lending and community bank branching activity
  - better consumer credit -> higher credit scores and more successful credit inquiries

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  - DiD estimates: 7.1 percent greater personal income

Main findings

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- Per capita income is higher under state courts
  - DiD estimates: 7.1 percent greater personal income
- Law => Credit => Economic Activity
  - A st. dev. increase in (predicted) credit erases income gap between reservations and adjacent counties
  - Larger effects in sectors more dependent on external finance

Data sources

1. Credit Market Data
   - Small Business Lending (CRA)
   - Community Banking Activity (FDIC)
   - Microdata on Consumer Credit (Equifax)
     - credit score: backward looking measure of credit outcomes
     - Supply-ratio: new credit lines, conditional on hard inquiries
2. Cross-Sector Income from BEA (1969-2000)
   - Earnings at county-sector-year level
3. External Finance Dependence from COMPUSTAT
   - Dynamic measure based on young firms

Formal identification strategy

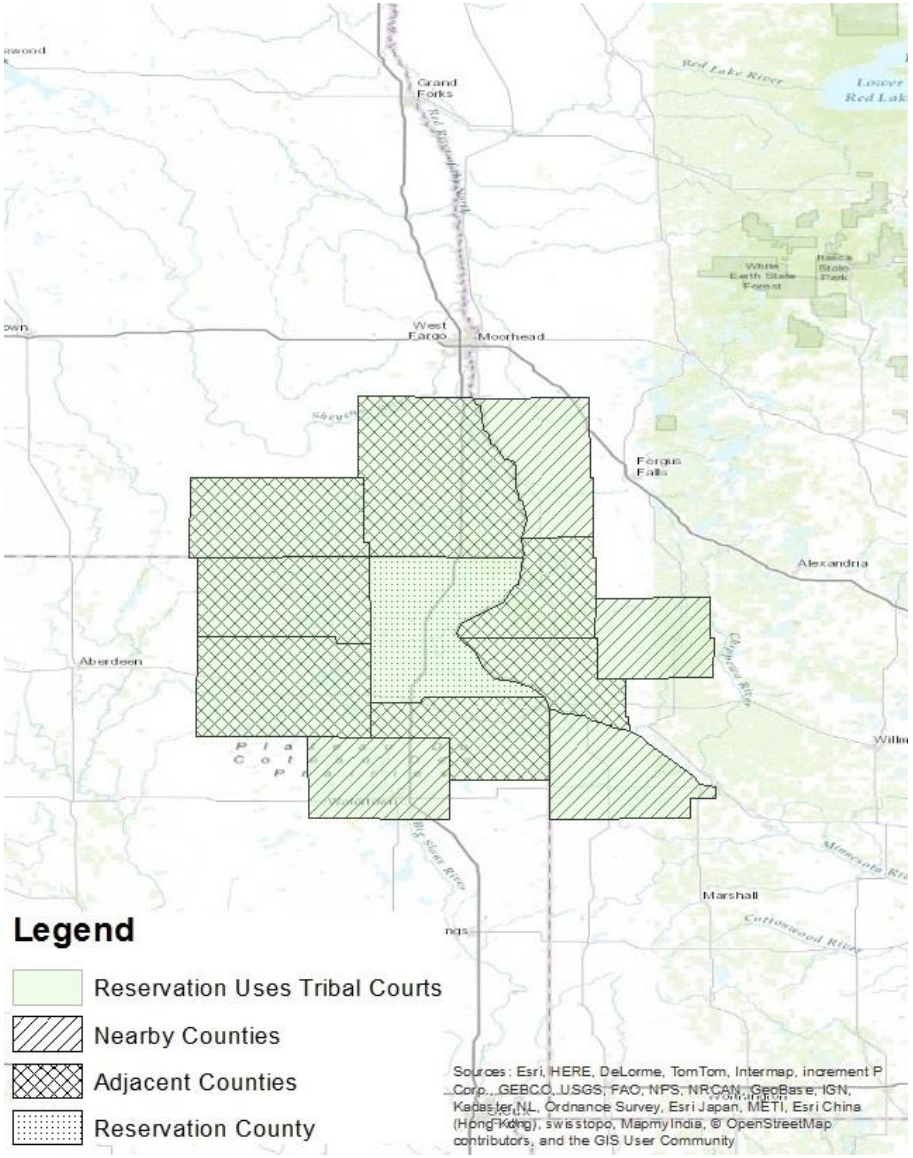
- Flexibly control for geographic shocks, using adjacent counties as control group ("spatial diff-in-diff")

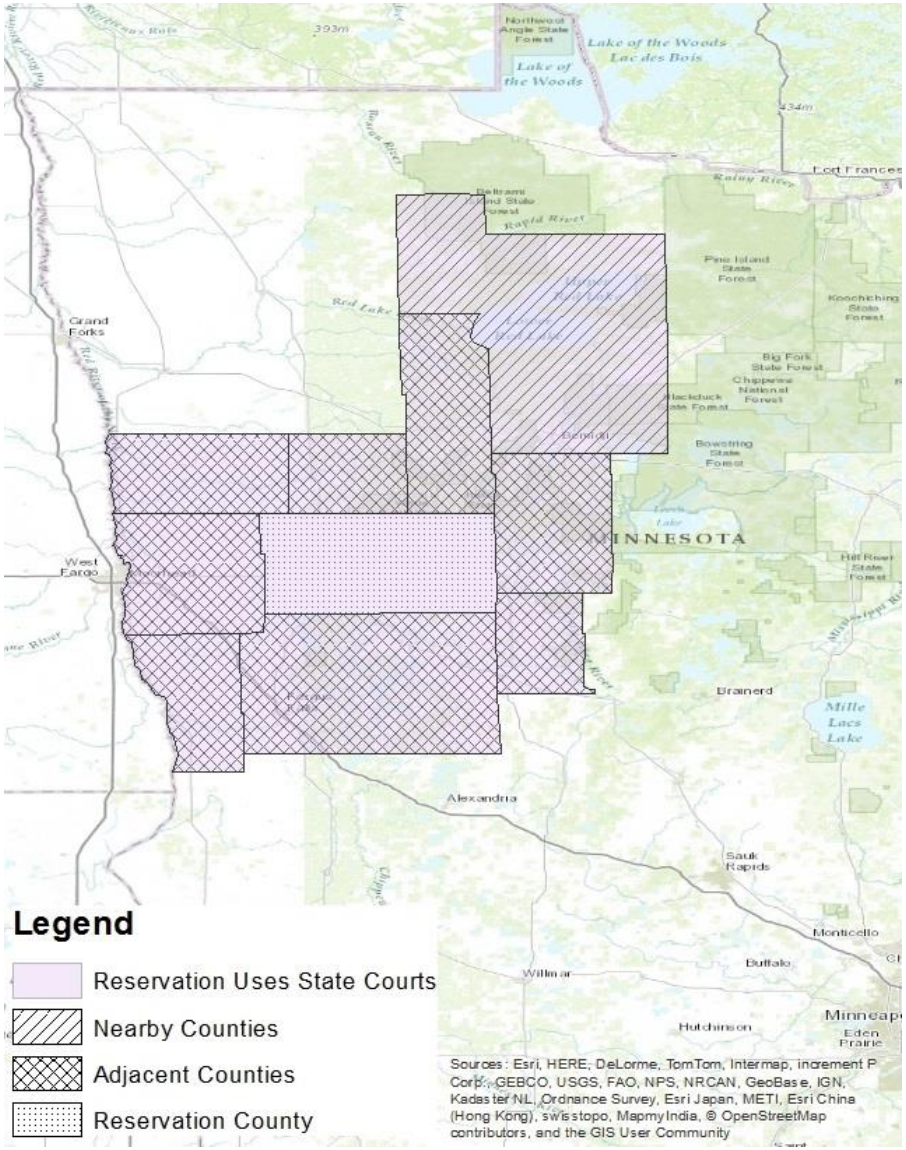
$$Y_{it} = \beta_1 resvn_i + \beta_2 stjur_i + \beta_3 resvn_i \, x \, stjur_i + controls + e_{it}$$

  - County *i* includes reservation and adjacent counties
    - $resvn_i$ = 1 if reservation county
    - $stjur_i$ = 1 if nearest reservation under state courts
  - Interpretation of coefficients
    - β_1: reservation difference relative to region
    - β_2: diffs across adjacent (off-reservation) areas
    - β_3: effect of legal environment on reservation gap

Formal identification strategy

Lake Traverse (stjur = 0) and White Earth (stjur = 1)





Legal enforcement and small business credit

Dep. Var: Logged small business credit in county *i*				
resvn x stjur	0.355**	0.440***	0.392**	0.347**
	(0.171)	(0.180)	(0.181)	(0.180)
resvn	-0.268***	-0.410***	-0.376***	-0.253**
	(0.090)	(0.090)	(0.102)	(0.108)
stjur	0.009	-0.093	0.081	0.060
	(0.116)	(0.125)	(0.160)	(0.036)
Area controls		x	x	x
State FE			x	x
Multi-County Controls				x
R^2	0.015	0.092	0.342	0.352
N	546	546	546	546

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Estimates => business credit 41.1-55.3% greater under state courts

Additional evidence on credit outcomes

- Within-bank evidence
  - a given bank is more likely to originate loans on reservations under state courts
  - conditional on lending, banks extend approx. 30 percent more small business loans to reservations with state courts
- Branching decisions of community banks
  - tribal courts: 20% fewer branches/pop than nearby areas
  - state courts: same branches/pop as nearby areas
- Consumer credit
  - Equifax credit scores significantly higher under state courts
  - Credit inquiries more successful under state courts

Credit and per capita income (1969-2000)

Dep. Var.: Logged per capita income in county *i*				
	Personal income		Proprietor income	
	OLS	IV	OLS	IV
resvn x log(resvn_credit)	0.122**	0.341***	0.184**	0.458***
	(0.037)	(0.042)	(0.033)	(0.068)
resvn	-0.067***	-0.025***	-0.048***	0.006
	(0.015)	(0.008)	(0.017)	(0.013)
log(resvn_credit)	0.010	-0.050***	0.025	-0.001
	(0.012)	(0.016)	(0.014)	(0.026)
State FE	x	x	x	x
Year FE	x	x	x	x
R^2	0.931	0.924	0.514	0.492
N	17405	17405	17405	17405

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Year FE	x	x	x	x
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Estimates => 1 std increase in credit, per capita income up 12-34%

Courts and per capita income: Direct effects

Dep. Var.: Logged per capita income in county *i*		
	Proprietor income	
	Full sample	Year 2000
resvn x stjur	0.112***	0.146**
	(0.036)	(0.070)
resvn	-0.112***	-0.165***
	(0.026)	(0.048)
stjur	-0.001	-0.063
	(0.037)	(0.075)
State FE	x	x
Year FE	x	x
R^2	0.505	0.364
N	17629	546

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	Proprietor income	
	Full sample	Year 2000
resvn x stjur	0.112***	0.146**
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resvn	-0.112***	-0.165***
	(0.026)	(0.048)
stjur	-0.001	-0.063
	(0.037)	(0.075)
State FE	x	x
Year FE	x	x
R^2	0.505	0.364
N	17629	546

Estimates stable over time (yearly cross-section)

Differential effects by sector

- Bureau of Economic Analysis (BEA) regional income accounts
  - BEA sectors => 1-digit SIC (roughly)
- Industry measures of external finance dependence
  - Rajan and Zingales (1998)
  - Use of external funds for median young firm over prior 5-years (so time-varying)
- Isolate across industry, within reservation effects

Differential effects across sectors

Dep. Var.: Logged sector per capita income in county *i*				
	Reservations only		Nearby counties	
stjur x extfin	0.032***	0.032***	0.007	0.007
	(0.012)	(0.012)	(0.019)	(0.019)
extfin	0.063***	0.063***	0.074***	0.059***
	(0.006)	(0.006)	(0.006)	(0.006)
stjur	0.061*		-0.061**	
	(0.031)		(0.030)	
Sector FE	x	x	x	x
Year FE	x	x	x	x
Reservation FE		x		x
R^2	0.473	0.614	0.406	0.462
N	13435	13435	13910	13910

Differential effects across sectors

Dep. Var.: Logged sector per capita income in county *i*				
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stjur x extfin	0.032***	0.032***	0.007	0.007
	(0.012)	(0.012)	(0.019)	(0.019)
extfin	0.063***	0.063***	0.074***	0.059***
	(0.006)	(0.006)	(0.006)	(0.006)
stjur	0.061*		-0.061**	
	(0.031)		(0.030)	
Sector FE	x	x	x	x
Year FE	x	x	x	x
Reservation FE		x		x
R^2	0.473	0.614	0.406	0.462
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Similar estimates working with predicted credit (IV regs)

Refining the measure of external finance dependence

- Internal funds, investment levels, use of external funds all contribute to external finance dependence

- Extract first two principal components:
  1. $0.773 \times extfin_{jt} + 0.533 \times capx_{jt} - 0.346 \times cf_{jt}$
  2. $-0.158 \times extfin_{jt} + 0.688 \times capx_{jt} + 0.708 \times cf_{jt}$

- Replace direct external finance measure with p.c. measures:
  - Positive interaction between *stjur* and comp1 (ext.depend)
  - Negative interaction between *stjur* and comp2 (internal.dep)

Conclusion

- Quasi-natural experiment: Externally imposed courts
  - Courts matter for credit provision
  - Credit matters for economic activity
  - Legal enforcement -> credit -> economic activity

- Important effects
  - Up to 70% of income gap between reservations and nearby areas due to law-driven diffs in financial development
  - => courts likely matter even when variation less pronounced

- Still much to learn about the institutional foundations of development from this setting