

Endogenous Property Rights.

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Endogenous Property Rights: Theory and Evidence.

- What Types of Legal Institutions Do Matter? Property Rights Institutions Versus Contracting Institutions (Acemoglu and Johnson, 2005).



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- Property Rights: Inefficient Exclusion From Trade Versus Inefficient Expropriation Trade-off.



What Types of Legal Institutions Do Matter? Property Rights Institutions Versus Contracting Institutions (Acemoglu and Johnson, 2005).



A Closer Look at the Coase Theorem.

If transaction costs are high, the initial allocation of a legal entitlement shapes the final allocation so that the institutional process i aggregating preferences—i.e., β —and technology—i.e., (z, w) —into laws and, in particular, the institutions affecting property rights are key. Acemoglu and Johnson (2005) refer to these rules as property rights institutions.



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If **transaction costs are low** and provided that contracts are enforced by courts, agents will organize their transactions in ways that achieve efficiency without government actions. Therefore, adjudication institutions i —i.e., those affecting the application of the law and so assuring the reliance on contracts—are key. Acemoglu and Johnson (2005) call these rules **contracting institutions**.



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We will study the choice of law making and adjudication institutions in class 5.



Acemoglu and Johnson (2005): OLS, ...

To evaluate the impact of “contracting institutions” F_c and “property rights institutions” I_c on development Y_c , they focus on

$$Y_c = \alpha F_c + \beta I_c + \mathbf{Z}_i' \gamma_0 + \epsilon_c, \quad (1)$$

where \mathbf{Z}_i gather the controls. Y_c can be the GDP per capita, the investment over GDP, the private credit over GDP, and the stock market capitalization. F_c can be the number of formal legal procedures necessary to collect an unpaid check, and two proxies for the legal difficulty to collect an unpaid commercial debt. I_c can be the Polity IV constraint on the executive, the Political Risk Services’ assessment of protection against government expropriation, and the Heritage Foundation’s measure of private property protection.



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OLS suggest that long-run economic growth, investment rates, and financial development are correlated with both types of institutions (Table 2).



First Stages of 2SLS, ...

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Exploit exogenous variation in F_c and I_c driven by colonial history (table 3):

- $F_c = \delta_1 L_c + \eta_1 M_c + \mathbf{Z}'_1 \gamma_1 + u_{1c}$ where L_c is the English common law legal origin dummy developed by La Porta et al. (1997).
- $I_c = \delta_2 L_c + \eta_2 M_c + \mathbf{Z}'_2 \gamma_2 + u_{2c}$, where M_c represents either the log mortality rate of European settlers or the log of the indigenous population density in 1500 (Acemoglu, Johnson, and Robinson, 2001 and 2002).

The instruments enter “strongly” and in a nice separable way into the first stages, solving therefore also the measurement error problem.



Second Stages of 2SLS, ...

2SLS estimates of equation (1) in tables 4-9 document that:

1. I_c has a first-order effect on all proxies for Y_c ;
2. F_c appears to matter only for the form of financial intermediation.

This evidence holds true even after shifting to other samples, controlling for a wide array of extra controls, and employing firm-level data.



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Issues: Inconsistency of L_c (class 5); inconsistency of M_c (later on today).



Property Rights: Dispersed Coercive Power in a State of Anarchy Versus Predation by a Central Enforcement Authority Trade-off.



The Disincentive Effect of Weak Property Rights.

A mass one of producers produce $x = (1 - \tau)(\rho v + z)$, where τ is the extent of public expropriation by either the government or powerful elites, v the quality of the technology, and z non-produced output. Investment costs equal $\frac{\rho^2}{2}$.



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The optimal investment $\rho^* = (1 - \tau) v$, output $x^* = [(1 - \tau) v]^2 + (1 - \tau) z$, and profit $\pi^* = \frac{[(1 - \tau) v]^2}{2} + (1 - \tau) z$ fall with the extent of public expropriation.



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In addition, strong property rights **expand trade** and facilitate credit markets, i.e., the **de Soto effect** (Besley and Ghatak, 2010)



Endogenous Property Rights, Democracy, and Resources.

The coercive authority will set a level of expropriation maximizing $\tau(\rho v + z) - \beta\tau = \tau(1 - \tau)v^2 + \tau z - \beta\tau$. Hence, $\tau^* = \frac{1}{2} + \frac{z - \beta}{2v^2}$ is bigger

- the lower is β , i.e., **the weaker are the political institutions forbidding expropriation** (see also Cervellati, Fortunato, and Sunde, [2008]);



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Evidence: Figures 1-3 and Tables 2 and 3 in Besley and Ghatak (2010).



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Missing Points, i.e., the Putative Ubiquity of Predation ...

How relevant is illegal predation by the state? It is a key issue only in developing countries in times of conflicts (Besley and Ghatak, 2010):



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How relevant is illegal predation by the state? It is a key issue only in developing countries in times of conflicts (Besley and Ghatak, 2010):

- **Mexico, 1936-1938.**—the government expropriated direct US investments in agriculture, railway, and petroleum triggering an Anglo-American boycott.
- **Iran, 1951.**—the expropriation of the British oil production facilities was followed by a coup jointly orchestrated by the UK and USA.

Remark: both display heterogeneous preferences and quite strong property rights.



and the General Incompleteness of Property Rights.

In general, legal systems allow some private expropriation:

- **Direct private takings** (over 30% of 2011 US GDP), e.g., adverse possession by good-faith buyer, double sale, embezzlement, unauthorized agency, financial instruments, lending contracts, and bankruptcy.



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- **Indirect private takings**, i.e., expropriation by the state (*Kelo v. City of New London*, 545 U.S. 469, 2005).

The general terms for adverse possession of a movable by a good-faith possessor in the **homogeneous and democratic** Germany, France, and Italy are 10, 3, and 0 years.



Our Contributions.

- Ex post or ex ante with transaction costs, misallocation is key, i.e., **trade-off between**
- **inefficient expropriation by low-valuation takers and inefficient exclusion from trade of middle-valuation buyers because of transaction costs.**



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Theory:

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- **confirms the model's testable predictions;**
- **documents the inconsistency of other measures of property rights.**



Set Up: Preferences ...

A society wants to regulate property rights over a good x consumed by either original owners or potential buyers. Both groups have mass one. While original owners value x at $v > 0$, potential buyers are heterogeneous in their valuation—i.e.,



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- a share $\Delta/2$ with $\Delta \leq 1$ values the good at $\underline{\lambda} > 0$;
- a share $\Delta/2$ at $\bar{\lambda} > v > \underline{\lambda}$;
- the remaining potential buyers have a valuation λ uniformly distributed over $[\underline{\lambda}, \bar{\lambda}]$ with $l \equiv \bar{\lambda} - \underline{\lambda}$ and $\lambda_m \equiv (\bar{\lambda} + \underline{\lambda})/2$. A rise in Δ implies a mean-preserving spread of the λ distribution.



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- t_3 An expropriated x is given back to its original owner with probability γ , which encapsulates the strength of the remedies in the original owner's hands, the length of adverse possession, and the probability of public enforcement.



Alternative Interpretations.

x captures economic value in general: i.e.,

1. it can be envisioned as an **input** producing an output of market value v when the “old” technology in the hands of the original owners is used and value λ when the “new” technology in the hands of potential buyers is used.



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3. it can be imagined as a land whose value is v for the citizens and λ for the state because of a shock to the preferences for (technology producing) a **public good**.



Socially Optimal Property Rights: Solution and

A potential buyer buys (expropriates) if $\lambda - v - \alpha > (1 - \gamma) \lambda \Leftrightarrow \lambda \geq \hat{\lambda} \equiv \frac{v+\alpha}{\gamma}$ (otherwise). Therefore, γ^* maximizes

$$(\bar{\lambda} - \alpha) \frac{\Delta}{2} + (1 - \Delta) \int_{\hat{\lambda}}^{\bar{\lambda}} \frac{\lambda - \alpha}{l} d\lambda + (1 - \Delta) \int_{\underline{\lambda}}^{\hat{\lambda}} \frac{(1-\gamma)\lambda + \gamma v}{l} d\lambda + \frac{(1-\gamma)\underline{\lambda} + \gamma v}{2} \Delta$$

if $\gamma^* \in \left(\frac{v+\alpha}{\bar{\lambda}}, 1 \right]$, and $(1 - \Delta) \int_{\underline{\lambda}}^{\bar{\lambda}} \frac{(1-\gamma)\lambda + \gamma v}{l} d\lambda + \frac{(1-\gamma)\lambda_m + \gamma v}{2} \Delta$ otherwise.



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► Basic Intuition



Comparative Statics.

The interior socially optimal level of property rights is

$$(\gamma^*)^2 = (v^2 - \alpha^2) \left[\lambda v + (v - \lambda) \left(\lambda - \frac{\lambda \Delta}{1 - \Delta} \right) \right]^{-1},$$

provided that the FOC holds for a $\gamma \in \left(\frac{v + \alpha}{\lambda}, 1 \right]$ and social welfare is higher at this value than it is at $\gamma^* = 0$. $\gamma^* > 0$ for Δ sufficiently high given our restriction on α .



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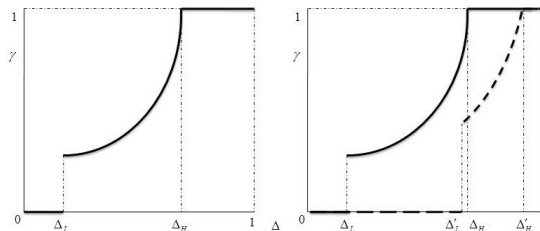
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In the following, I focus on the interior solution case.



Socially Optimal Property Rights.



The Political Economy of Property Rights Protection.

A minority of “insiders” chooses γ^* . Focus on the group formed by the original owners and the buyers with the highest valuation so that γ^* now maximizes

$$(\bar{\lambda} - \alpha) \frac{\Delta}{2} + (1 - \Delta) \int_{\hat{\lambda}}^{\bar{\lambda}} \frac{\lambda - \alpha}{l} d\lambda + (1 - \Delta) \int_{\Delta + \epsilon}^{\hat{\lambda}} \frac{(1 - \gamma)\lambda + \gamma v}{l} d\lambda + \gamma v \left(\frac{\Delta}{2} + \frac{\epsilon}{l} \right).$$



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$\frac{d\gamma}{d\Delta} > 0$ and γ^* is inefficiently high, e.g., Zamindari system of land taxation in India allows landowners to expropriate from tenants (Besley and Ghatak, 2010).



More General Market Structures.

$\alpha = \beta\delta$ where β is the mark up component selected by the original owners between t_1 and t_2 and δ an inverse measure of market competitiveness. β^* maximizes

$$(v + \beta\delta) \frac{\Delta}{2} + (1 - \Delta) \frac{(v + \beta\delta)(\bar{\lambda} - \hat{\lambda})}{l} + (1 - \Delta) \gamma v \frac{(\hat{\lambda} - \underline{\lambda})}{l} + \gamma v \frac{\Delta}{2},$$

with $\hat{\lambda} \equiv \frac{v + \beta\delta}{\gamma}$. $\beta^*\delta = \frac{\gamma l \Delta}{4(1 - \Delta)} + \frac{\gamma \bar{\lambda}}{2} - \frac{v(2 - \gamma)}{2}$ if interior so that $\frac{d\hat{\lambda}}{d\gamma} = 0$.



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Society picks γ^* considering also the original owners' profits. Again, $\frac{d\gamma}{d\Delta} > 0$.



Market for Lemons (Hasen and McAdams, 1997).

Each original owner has private information on her valuation v , which is drawn from an uniform distribution with support $[\underline{\lambda}, \bar{\lambda}]$ and correlated to that of potential buyers. $1 - \Delta$ potential buyers have valuation $v + \mu$ with $0 < \mu < (\theta - 1)v$ and $\theta > 2$, $\Delta/2$ of them value the good at θv , and the remainder at v/θ .



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The price on the official market is exogenously fixed at $p > 2\mu$ so that a buyer infers that the expected value of x is $p/2$ since the owner sells only if $v \leq p$. γ^* solves

$$\theta \left(\frac{\underline{\lambda} + \bar{\lambda}}{4} + \left[(1 - \gamma) \left(\frac{\underline{\lambda} + \bar{\lambda}}{2} + \mu \right) + \frac{\gamma(\underline{\lambda} + \bar{\lambda})}{2} \right] (1 - \Delta) + \left[(1 - \gamma) \frac{\underline{\lambda} + \bar{\lambda}}{2\theta} + \frac{\gamma(\underline{\lambda} + \bar{\lambda})}{2} \right] \frac{\Delta}{2}, \right.$$

so that γ is 1(0) if $-\mu(1 - \Delta) + (\underline{\lambda} + \bar{\lambda}) \frac{\theta - 1}{\theta} \frac{\Delta}{4} \geq (<) 0$. $\frac{d\gamma}{d\Delta} > 0$ and $\frac{d\gamma}{d\mu} < 0$.



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so that γ is 1(0) if $-\mu(1 - \Delta) + (\underline{\lambda} + \bar{\lambda}) \frac{\theta - 1}{\theta} \frac{\Delta}{4} \geq (<) 0$. $\frac{d\gamma}{d\Delta} > 0$ and $\frac{d\gamma}{d\mu} < 0$.

Remark: $\frac{d\gamma}{d\Delta} > 0$ in the basic complete info setup when owners have heterogeneous valuations and buyers a fixed utility (both groups are heterogeneous and low-valuation owners are matched to high-valuation buyers at the cost α), if v can be high enough.



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Being production valuable also for buyers, society selects the maximum between $\hat{\gamma}$ and the interior solution. **γ^* are increased to incentivate production and $\frac{d\gamma^*}{d\Delta} > 0$.**



Investment.

Original owners gain $\rho\alpha$ by investing $\frac{\rho^2}{2}$. ρ^* has no marginal effect so it maximizes

$$(v + \rho\alpha) \frac{\Delta}{2} + \frac{(1-\Delta)(v+\rho\alpha)(\bar{\lambda}-\hat{\lambda})}{l} + \gamma v \frac{(1-\Delta)(\hat{\lambda}-\underline{\lambda})}{l} + \gamma v \frac{\Delta}{2} - \frac{\rho^2}{2},$$

and equals when interior $\alpha\Delta/2 + \alpha(1-\Delta)(\bar{\lambda}-\hat{\lambda})l^{-1} < 1$ so that $\frac{d\rho}{d\gamma} > 0$.



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This time, the optimal level of property rights maximizes the function

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whose first order condition equals that in the basic model except for the investment inducement term $-\alpha^2 \frac{\Delta(1-\Delta)}{l} \frac{d\hat{\lambda}}{d\gamma}$. γ^* is unique, greater than that prevailing in the absence of investment, and increasing with the extent of heterogeneity Δ .



Property Vs. Liability (Calabresi and Melamed, 1972).

Potential buyers need to pay to acquire the property of x when the legal system applies liabilities instead of the property rules. With probability ϕ damages are incorrectly equalized to $\underline{\lambda}$ (Kaplow and Shavell, 1996), otherwise they equal v .



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This time, $\hat{\lambda} \equiv \frac{v+\alpha-(1-\gamma)\tilde{\lambda}}{\gamma}$ with $d = \phi\underline{\lambda} + (1 - \phi) v$ and γ^* maximizes

$$\int_{\hat{\lambda}}^{\bar{\lambda}} \frac{\lambda - \alpha}{l} d\lambda + \int_v^{\hat{\lambda}} \frac{(1-\gamma)\lambda + \gamma v}{l} d\lambda +$$

$$\int_{\underline{\lambda}}^v \frac{(1-\gamma)\phi\lambda + [(1-\gamma)(1-\phi) + \gamma]v}{l} d\lambda + \frac{(1-\gamma)\phi\underline{\lambda} + [(1-\gamma)(1-\phi) + \gamma]v}{2(1-\Delta)} \Delta.$$

Liability rules are more likely the lower Δ is, and the higher α and d are (see also Bar-Gill and Persico, [2012]).

► Private sales

► Costly expropriation



The Sample and the Dependent Variable.

We sent questionnaires to LEX-MUNDI and HG.org lawyers, and prominent law professors in 126 jurisdictions and obtained the variables:

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- *Government-Takings*—Dummy equal to 1 if the state cannot take real property to transfer it to a private entity for private for-profit use (n. 76).



The Data: The Independent Variable.

— Main Measure:

- *Ethnic*.—the probability that two randomly drawn individuals belong to different ethnic groups. This is a metric of genealogical distance among populations with a common co-ancestor and thus of differences in characteristics, like moral values and preferences, transmitted across generations (Cavalli-Sforza et al., 1994; Alesina et al., 2003).



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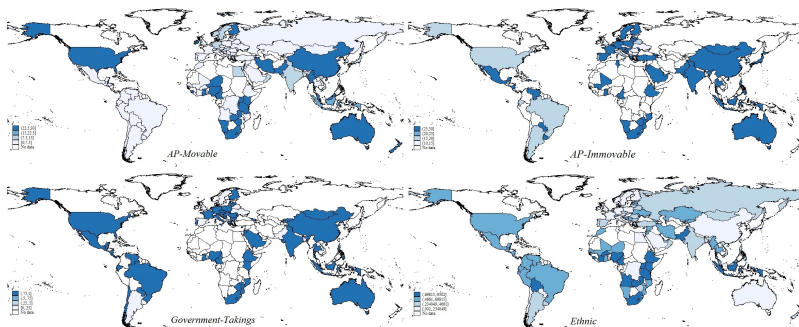
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— Tables 6: We obtain very similar estimates substituting *Ethnic* with:

- *Language*, i.e., Language fractionalization. Source: Alesina et al. (2003);
- *Religion*, i.e., Religious fractionalization. Source: Alesina et al. (2003);
- *Elf*, i.e., Ethnolinguistic fractionalization. Source: Fearon and Laitin (2003).



Property Rights and Ethnic Fractionalization.



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1. **OLS with controls (Tables 3, 4, 5):** consider *Pathogen-Load* and *Urbanization-1500*, which are two primary determinants of the type of institutions implemented during colonial rule, *Culture*, *Reserves*, *Democracy*, *Common-Law*, *Land-Quality-SD* and *Ruggedness*, *Income* and *Gini* (internet appendix) . *Culture*, *Democracy*, and *Common-Law* also control for differences in transaction costs.



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2. **Native Populations (Table 7):** focus on jurisdictions where the majority of contemporary inhabitants can trace their ancestry in 1500 AD to the same area.
3. **Altonji, Elder, and Taber (2005) (Table 8):** to attribute the entire OLS estimate to selection effects, **selection on unobservable factors would have to be on average 60 times greater than selection on observable factors.**



IV (Table 9).

The instruments, which enter the first stage “strongly” and with the right sign, are:

- *Origin-Time*.—New ethnic groups emerge due to an insufficient supply of public goods and the first uninterrupted settlement by the AMH was driven by continental catastrophes (Ahlerup and Olsson, 2008).



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- *Latitude*.—Conditional on “within” geography the relation between ethnicity and latitude should pass only through climate similarities of regions at the same vertical distance from the equator (Cashdan, 2001).



Predation-based Measures of Property Rights Protection.

— *Private-Property*: discrete score from 1 to 5 with higher values indicating stronger protection of private property in 1997. Available at <http://www.heritage.org/Index/>



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— *Av-Expropriation*: Inverse measure of the risk of expropriation of private foreign investment from 0 to 10 with higher scores meaning less risk, averaged between 1985 and 1995. Available at <http://www.prsgroup.com>



“Us And Them.”

Table 10:

— Predation-based measures correlate in a small and positive (strong and negative) way with *AP-Movable* (*AP-Immovable* and *Government-Takings*).



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- Predation-based measures correlate in a small and positive (strong and negative) way with *AP-Movable* (*AP-Immovable* and *Government-Takings*).
- They correlate negatively with *Ethnic*.



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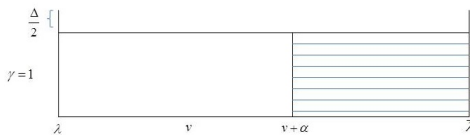
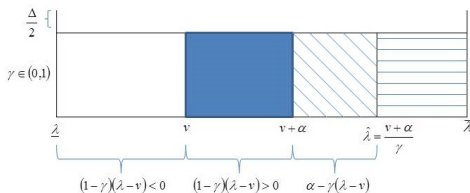
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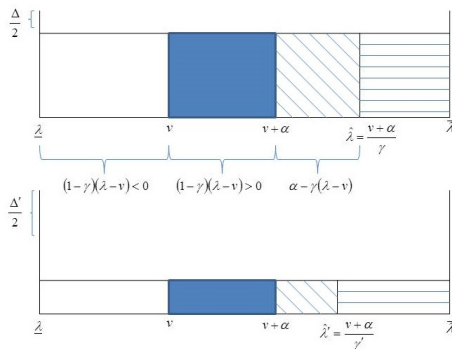
Appendix 1.

Basic Intuition: Solution ...



Appendix 1.

and Comparative Statics.



◀ Return I



Heterogeneity Rises as in the Basic Model.

A share $\Delta/2$ of potential buyers value the good at $\underline{\lambda} > 0$, a share $\Delta/2$ of them value x at $\bar{\lambda} > v > \underline{\lambda}$, and the remaining potential buyers have valuation $\lambda \in [\underline{\lambda}, \bar{\lambda}]$ distributed according to the generic probability density function f with cumulative distribution function F . If interior the optimal level of property rights maximizes

$$(1 - \Delta) \int_{\hat{\lambda}}^{\bar{\lambda}} (\lambda - \alpha) dF(\lambda) + (1 - \Delta) \int_{\underline{\lambda}}^{\hat{\lambda}} [(1 - \gamma)\lambda + \gamma v] dF(\lambda) + \frac{(1 - \gamma)\underline{\lambda} + \gamma v}{2} \Delta,$$

which is strictly concave if $\frac{d\hat{\lambda}}{d\gamma} \left[\frac{1 - \gamma}{\gamma} v \hat{\lambda} f'(\hat{\lambda}) + \frac{v - \alpha}{\gamma} f(\hat{\lambda}) \right] < 0$. We assume this last condition throughout. $\frac{d\gamma^*}{d\Delta} > 0$ since an interior γ^* is implicitly defined by

$$\frac{1 - \gamma^*}{\gamma^*} v \hat{\lambda} f(\hat{\lambda}) - (\hat{\lambda} - v) F(\hat{\lambda}) + \int_{\underline{\lambda}}^{\hat{\lambda}} F(\lambda) d\lambda + \frac{(v - \underline{\lambda})\Delta}{1 - \Delta} = 0.$$



Carmine Guerriero - Endogenous Property Rights

Private Sales.

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High (middle)-valuation buyers buy at $\alpha + v$ (the bargaining price p_C), whereas low-valuation buyers expropriate. Since the supply of private takings is smaller than that of the basic model and some legal transactions also entail the social loss ξ , γ^* is optimally lowered to encourage private expropriation and thus save social costs.



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Furthermore, the model's testable prediction remains true.

◀ Return 3



Costly Expropriation.

Potential buyers bear a cost $c > 0$ when they expropriate and γ^* maximizes

$$\frac{(\bar{\lambda} - \alpha)\Delta}{2} + (1 - \Delta) \int_{\hat{\lambda}}^{\bar{\lambda}} \frac{\lambda - \alpha}{l} d\lambda +$$

$$(1 - \Delta) \int_{\frac{c}{1-\gamma}}^{\hat{\lambda}} \frac{(1-\gamma)\lambda + \gamma v - c}{l} d\lambda + \left[\frac{1-\Delta}{l} \left(\frac{c}{1-\gamma} - \underline{\lambda} \right) + \frac{\Delta}{2} \right] v.$$

Low-valuation buyers do not consume, γ^* is not a function of Δ if interior but it rises with the extent of preference heterogeneity in the case of a corner solution provided that v is not too different from $\bar{\lambda}$ and so the welfare brought by the middle-valuation buyers' takings is higher than that coming from the high-valuation buyers' takings.

