Democracy, Judicial Attitudes and Heterogeneity: the Civil Versus Common Law Tradition.[*]

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November 27, 2009

Abstract

A key issue in the design of a legal system is the choice of the mechanism aggregating citizens' preferences over the harshness of punishment. While under Case law appellate judges' biases offset one another at the cost of volatility of the law, under Statute law a corruptible Legislator chooses certain rules that are biased only if she favors special interests: i.e., when the preference heterogeneity is sufficiently high and/or the political process sufficiently inefficient. Thus, society should possibly choose Case law only in the last scenario. Instrumental variables estimates based on data from 156 countries, which possibly reformed the transplanted law making institution, confirm this prediction.

Keywords: legal origins, culture, democracy, economic development.
JEL classification: K40; Z1; H11; 010; P16.

"A legal tradition [...] is not a set of rules of law [...] rather it is a set of deeply rooted, historically conditioned attitudes about [...] the proper organization and operation of a legal system. The legal tradition relates the legal system to the culture of which it is a partial expression" *The Civil Law Tradition*, Merryman (1969), page 2.

1 Introduction

The law and the institutions entrusted with its creation are deeply influenced, in a great part of the world, by either the Civil law or the Common law tradition. While the latter originated in England and has, then, been transplanted through colonization into England's ex-colonies, the former has its roots in the Roman law and was imposed by Napoleon to continental European countries and exported by the latter to Latin America, Africa and Asia. Structurally the two traditions operate in very different ways: while Common law recognizes a crucial role to precedents and allows more procedural discretion to lower adjudicating courts, Civil law relies on legal codes and bright line adjudication rules. Exploiting these differences and assuming that transplanted institutions remained in place unaffected after independence, the "legal origins" project has provided evidence suggesting that French and socialist Civil law countries display more inefficient governments and courts, less secure investor rights and a stricter market regulation than Common law countries do (see La Porta, Lopez-de-Silanes and Shleifer, [2008]). Yet, legal scholars have recently documented a great wave of convergence and that, for instance, countries where the Common law tradition was transplanted are relying more heavily on statutes (see Zweigert and Kötz, [1998]; Roe, [2004]). What is, therefore, the set of forces justifying, despite all the evidence in favor of Common law, the existence of such dissimilar institutions and their counterintuitive evolution?

This paper lays out a theoretical framework for thinking about these issues, and explores its empirical implications using data on the history of the legal order of 156 countries that received their initial legal tradition externally by a fairly exogenous transplantation process— hereafter transplanted. The model merges a recent body of research on endogenous lobbying (Felli and Merlo, 2006) with a lively literature on Case law (Gennaioli and Shleifer 2007a and b; Fernandez and Ponzetto 2008 and 2009), and studies a world of social groups separated by

their cultural preferences over the level of deterrence that laws impose. At the Constitutional table, society chooses between two law-making institutions comparing their long run welfare properties. Under Case law appellate judges, randomly picked from the population and bearing variable costs of overruling the precedent, choose the law. Under Statute law, instead, the prevailing rule is selected by a Legislator who bargains with coalitions of the social groups facing fixed collective action costs. While the Legislator selects certain rules which are unbiased only if does not sign side contracts, judicial biases balance one another and induce the long run optimal rule at the cost of everlasting volatility. If the cultural distance among groups is small, collective action costs discourage side contracts and Statute law outperforms Case law. Yet, as the cultural distance rises, the Legislator eventually favors special interests and statutes move away from the optimal rule the more the lower is the quality of political process—i.e., democracy. In this case, there is a level of democracy below which Case law prevails over Statute law. Also, rules allowing the use of limited discretion by lower adjudicating courts increase appellate judges' overruling costs and make Statute law volatile. Thus, a pure Common (Civil) law tradition where Case (Statute) law is used along with flexible (bright line) adjudication rules endogenously arises. I also show that all these patterns stand whether or not appellate judges or the Constitutional table are corrupted.

To test the model's predictions I have collected, for the first time in literature, data recording the law making institution in place in 156 transplanted countries at independence and in 2000 and four adjudication rules, related to the extent of procedural discretion allowed to lower courts, in place in 98 of the 156 countries during the same two points in time. In sharp contrast to the "legal origins" maintained hypothesis, 26 countries have reformed their law-making institution and 91 have reformed at least one of the adjudication procedures. Consistent with the model, in countries in which Civil law—i.e., Statute law and bright line adjudication rules—was transplanted, reforms toward Common law—i.e., Case law and flexible adjudication rules—are more likely the weaker are political institutions and the broader is cultural heterogeneity. Symmetrically moves toward Civil law in countries to which Common law was imposed are found where democracy is stronger. I use the strength of the constraints on the executive as a proxy for democracy and I measure cultural heterogeneity with both the genetic distance between the plurality ethnic group in the country which chose

the law-making institution and the one in the transplanted country and the ethno-linguistic fractionalization in the transplanted country. The results are stronger when I employ an instrument suggested by evolutionary biology (cross-cultural psychology) to deal with the endogeneity of the ethno-linguistic fractionalization (constraints on the executive) measure.

The paper most closely related to mine is Fernandez and Ponzetto (2008) who build on similar adjudication microstructures but assume that the set of lobbies participating to policy making is exogenously given by a random process and that, being selected by corrupted politicians and eventually coerced by powerful litigants, the judiciary is less democratically representative than the legislature.[1] Hence, albeit in the short run Statute law is optimal, in the long run judge-made law is always superior to Statute law due to its evolutionary properties. Such result, which is entirely driven by the empirically unreasonable assumption that all groups are equally willing to participate to policy-making (see Wright, [1996]), not only comes very short in explaining the observed evolution of legal systems but also completely fails to highlight the role of cultural heterogeneity. Yet, this is a general drawback of the literature. Indeed, although the comparative merits of Statute law and Case law have been debated for centuries,[2] the present paper constitutes the first attempt to link the welfare properties of law making and adjudication institutions to the cultural and political environment,[3] and to implement a full-fledged empirical test of the resulting implications.[4] My results cast several doubts on the supposed primacy of Common law and suggest that the new "legal origins" project should not only consider the evolving nature of all the different institutions characterizing the two traditions, but should also take care of the fact that this evolution is function of forces—i.e., cultural heterogeneity and democracy, which affect the economic performances we want to explain. The rest of the paper is organized as follows. Section 2 identifies the extent of democracy and cultural heterogeneity conducive

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[1]This also means that the judiciary is less suited to react to social changes and, a mixed system, but not pure Statute law, could be optimal in countries experiencing strong shocks (Fernandez and Ponzetto, 2008). Despite this pattern is again at odd with observed reforms, gaining more understanding about it remains as an agenda to be addressed once the timing of the switches and proxies for social change will be available.

[2]Proponents of Statute law (Hobbes, 1681; Bentham, 1891) stress the certainty of statutes; supporters of Case law (Cardozo, 1921; Hayek, 1960; Posner, 2007) exalt the evolutionary properties of precedents.

[3]Looking at the 13th century France and England, Glaeser and Shleifer (2002) also study the relation among law making and adjudication institutions; yet, their focus is on the threat of coercion by powerful litigants.

[4]Balas et al. (2008) constitutes an exception; looking at similar adjudication institutions between 1950 and 2000, they document that the formalism of legal procedure in Civil and Common law countries diverged.

to a primacy of either Statute law or Case law. Section 3 studies the relation between law making and adjudication institutions. Section 4 states the predictions which are tested in section 5; section 6 concludes. The appendix gathers all the proofs and tables.

2   The Optimal Law-making Institution

Next, I will first introduce the analysis of the underlining regulation problem, which takes its approach from Gennaioli and Shleifer (2007a); then, I will explain how it is performed under Case law and Statute law. Finally, I will compare the two institutions.

The regulation problem: first and second best.—Consider a society composed by a continuum of citizens whose mass is normalized to one. This society is interested in regulating a harmful action affecting two parties: an offender O and a victim V. The former can take precautions at a cost C. Precautions reduce the probability of an accident from p_N to $p_P = 0$. The harm suffered by the victim is normalized to unity, and precautions are socially optimal if and only if $p_N - p_P = p_N > C$. The conditional probability of an accident depends on the attributes $a \in [0,1]$ and $u \in [0,1]$ which are independently and uniformly distributed in the population of cases. Assume that $p_N - p_P = \overline{\Delta P} > C$ if $a + u \geq 1$ and $p_N - p_P = \underline{\Delta P} < C$ if $a + u < 1$. Therefore, the offender should be held liable whenever $a + u \geq 1$.

The legal system has two tiers. In the lower tier adjudicating courts observe only a and act as a perfect agent of the law-maker—to be relaxed in section 2.2. Damages are so high that they induce the offender to take precautions when she is held liable; therefore, in the upper tier, the law-maker's problem reduces to finding the level of a—call it A—such that lower courts hold the offender liable if and only if $a \geq A$. Imperfect information implies statistical errors. The offender is mistakenly held liable if $a \geq A$ and $a < 1 - u$ which happens with probability $\int_A^1 (1 - a)\, da = (1/2)(1 - A)^2$, and mistakenly held not liable if $a < A$ and $a \geq 1 - u$ which happens with probability $\int_0^A a\, da = (1/2) A^2$. Over (under) precautions bring the fixed marginal cost $\bar{\Lambda} = C - \underline{\Delta P}$ ($\underline{\Lambda} = \overline{\Delta P} - C$); therefore, $\lambda = \bar{\Lambda}/\underline{\Lambda}$ is the relative marginal cost of a false positive in terms of a false negative.

A world of biases.—The population is equally split in two groups $i \in I = \{L, H\}$ differing for their perception of the real harm of the action so that group i perceives the relative cost of a false positive as $\beta_i = \beta_{O,i}/\beta_{V,i}$ with $\beta_{O,i} + \beta_{V,i} = 1, \forall i$. Accordingly, the unconcerned group L

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has $\beta_L = \lambda\pi$ and the concerned group H has $\beta_H = \lambda/\pi$; to this extent, $\pi \in (1, \infty)$ represents a measure of cultural heterogeneity: i.e., the extent of disagreement about the harm brought by the action between citizens belonging to groups with different ethnic, religious or political long-lasting ideologies.[5] The loss of welfare relative to the first best for a type i citizen is

$$\Lambda_i(A) = (1/2)\left[\beta_{O,i}(1-A)^2 + \beta_{V,i}A^2\right], \tag{1}$$

which can be fully characterized by group i's favorite threshold $\hat{A}_i = \beta_{O,i} = \Gamma(\beta_i)$ with $\Gamma(x) \equiv x(1+x)^{-1}$.[6] The unconcerned group prefers the lenient $\hat{A}_L = \lambda\pi(1+\lambda\pi)^{-1} \equiv \bar{A}$ while the concerned one the stricter $\hat{A}_H = \lambda(\pi + \lambda)^{-1} \equiv \underline{A}$. Therefore, (1) rewrites as:

$$\Lambda_i(A) = (1/2)\left[\hat{A}_i(1-A)^2 + \left(1 - \hat{A}_i\right)A^2\right] \propto (1/2)\left(A - \hat{A}_i\right)^2. \tag{2}$$

Under rule A, the loss of social welfare—relative to the first best—is

$$\tilde{\Lambda}(A) = (1/2)\left[\Lambda_L(A) + \Lambda_H(A)\right] \propto (1/2)\left(A - E\left(\hat{A}_i\right)\right)^2, \tag{3}$$

and the optimal rule $\tilde{A}$ equals $E\left(\hat{A}_i\right)$.[7] In evaluating the generality of this set up, it is worth to notice that the model applies not only to tort law but to other legal branches as long as a is interpreted as the only observable between two dimensions proving the defendant's culpability. Here, the cost of a false positive (negative) equals the foregone utility from acting net of the expected harm (the opposite) measured when conviction is inefficient (efficient). *The timing.*—The timing is as follows (see also Fernandez and Ponzetto, [2008]):

1. At the Constitutional table in $t = 0$ society chooses between Statute law and Case law comparing the expected long run losses of welfare under the two institutions;

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[5]Running public good experiments on comparable participant pools around the world, Herrmann, Thöni, and Gächter (2008) document the existence of large differences in individual willingness to punish free riders and their relation with cultural biases. Glaeser and Sacerdote (2003) provide evidence compatible with the idea that sentences respond to citizenry tastes for vengeance as driven by ethnic differences.

[6]The first best implies that in half of the cases precautions are not taken and the expected cost of accident is ΔP and that, in the other half, precautions are optimally taken and the social cost is C.

[7]$\tilde{A}$ is weakly greater (strictly lower) than the technologically efficient $A^* = \Gamma(\lambda)$ for $\lambda \leq 1$ ($\lambda > 1$)—see the appendix. Without normalization, $\tilde{A}$ differs from both $E\left(\hat{A}_i\right)$ and A^* for all $\lambda \neq 1$, and the lobbying game described below has more equilibria. Yet, the main qualitative message of the model still holds. Similarly, if the groups had different mass, the model's features would be similar but the algebra more cumbersome.

2. If Statute law has been chosen, the Legislator selects in $t = 1$ a rule A_S at the end of a bargaining game to be further discussed below; then A_S sticks forever. If Case law has been chosen, an appellate judge randomly picked from the population selects in $t = 1$ a $A_{c,1}$ which guides adjudication until another judge overrules it in t, turning $A_{c,t-1} = A_{c,1}$ into $A_{c,t}$, and possibly giving rise to a new round of changes.

2.1 *Statute Law versus Case Law*

Let me start from the characterization of the equilibrium under Case law.

Case law.—Stare decisis only binds in so far as it is costly for judges to change the precedent. A judge inheriting precedent $A_{c,t-1}$ and setting a $A_{c,t} \neq A_{c,t-1}$ can introduce any change in the law. Yet, the need to justify his decision implies a persuasive effort whose cost rises with the relevance of the doctrine of *stare decisis* $K > 0$—see the institutional analysis of section 4—and the magnitude of the legal revision so that "the greater the effective deviation from precedent, the greater the difficulty to reconcile it with the rhetorical demands of *stare decisis*" (Fernandez and Ponzetto, 2008). Judge i's strictly concave problem is:[8]

$$\hat{A}_{c,t}(i) = \arg\max_{A_{c,t}(i)} -(1/2)\left(A_{c,t}(i) - \hat{A}_i\right)^2 - (K/2)\left(A_{c,t}(i) - \hat{A}_{c,t-1}\right)^2.$$

A type i judge minimizes both the loss she bears as a part of group i when $A_{c,t}$ differs from $\hat{A}_i$ and the one of justifying a $A_{c,t}$ far from $A_{c,t-1}$. The unique and global solution $\hat{A}_{c,t} = \Gamma(K) A_{c,t-1} + [1 - \Gamma(K)] \hat{A}_i$ implies that Case law follows an auto-regressive process converging to the ergodic distribution with mean $E\left(\hat{A}_i\right)$ and variance $\mathrm{V}\left(\hat{A}_c\right) = V\left(\hat{A}_i\right)(1 + 2K)^{-1}$, where $V\left(\hat{A}_i\right) = (1/4)\left(\bar{A} - \underline{A}\right)^2$ is the variance of the groups' bliss points and $\hat{A}_c$ the long run judge-made law. The long run loss of social welfare under Case law is:

$$\mathrm{E}\left(\tilde{\Lambda}\left(\hat{A}_c\right)\right) \propto (1/2)\,\mathrm{V}\left(\hat{A}_c\right) + (1/2)\left(\mathrm{E}\left(\hat{A}_c\right) - \tilde{A}\right)^2 = V\left(\hat{A}_i\right)[2(1 + 2K)]^{-1}.$$

As stressed by Cardozo (1921), Gennaioli and Shleifer (2007b), and Fernandez and Ponzetto (2008), Case law assures long run unbiasedness at the cost of everlasting volatility. Lemma 1 which is similar to proposition 5 in Gennaioli and Shleifer (2007b) summarizes the results:

Lemma 1: *Let attribute u be unobservable. Case law evolves as a first-order autoregressive process which converges to the ergodic distribution* $N\left(E\left(\hat{A}_i\right), V\left(\hat{A}_i\right)(1 + 2K)^{-1}\right)$.

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[8]The analysis is completely similar when appellate judges maximizes $-\Lambda_i(A_{c,t}) - (K/2)(A_{c,t} - A_{c,t-1})^2$.

The asymptotic variance $\mathrm{V}\left(\hat{A}_c\right)$ *rises with the cultural heterogeneity* π *and falls with the institutional relevance of stare decisis* K.

Statute law.—Dating back to the rise of the absolute monarchy, legislation has been interpreted as the sovereign act of the legitimate political authority (Hobbes, 1681). The political process, however, involves also lobbies representing the special interests of groups of citizens particularly affected by policy-making. Thus, statutes reflects the society's will the more accurately the stricter the constraints on the Legislator—i.e., the government, the legislature and the president—are. To capture at best such interaction between political institutions and ideology, I use the endogenous lobbying model devised by Felli and Merlo (2006).

In particular, I suppose that A_s is chosen by a Legislator who bargains with coalitions of the two groups and maximizes a weighted average of the loss of social welfare and the perquisites y from favoring special interests so that her utility is $U\left(A_s, y\right) = -(1-\mu)\tilde{\Lambda}\left(A_s\right) + \mu\left|i\right|y$.[9] Therefore, μ is not simply a measure of corruption but represents the relative weight that the Legislator is constrained to place on special interests *vis-a-vis* the society's will (see also Acemoglu and Robinson, [2006]). In other words, μ is an inverse measure of democracy or correspondingly of the quality of the political process and there is no presumption in the model that more democratic society are also less corrupted. A wide body of recent research has shown that the quality of political institutions is highly persistent and mainly related to long lived cultural traits (Acemoglu et al., 2008; Tabellini, 2008; Guiso, Sapienza, and Zingales, 2009). I shall focus here exactly on this persistent component of democracy which will be also used in the empirical section. Each lobby—alone or in coalition—can sign binding contracts with the Legislator over A_s in exchange for y. The Legislator chooses the winning coalition who, in turn, has to pay a fixed non sunk "collective action" (Olson, 1965) fee $\Psi > 0$ in order to transfer the bribes.[10] These two model's features constitute the sense in which lobbying is endogenous, and avoid the empirically unsatisfactory menu-auction models' assumption that all groups are equally willing to participate to policy-making (see Wright, [1996]). The Legislator has the option of not

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[9]The adjustment for $\left|i\right|$ is meant to avoid that a rise in the number of groups brings a mechanical bonus to democracy. I can easily get rid of it.

[10]These are the costs of "establishing links with politicians, hiring professional lobbyists, building a communications network [...], designing a scheme of punishments for defaulting members" (Mitra, 1999).

signing any contract and implementing as status quo the second best rule $\tilde{A}$ (see for a similar set up Acemoglu and Robinson, [2006]). All in all, lobby i's utility is $-\left(1/2\right)\Lambda_i\left(A_s\right)-y$. Let $\Omega=\{\{\phi\},\{L\},\{H\},\{L,H\}\}$ denotes the set of possible coalitions l. For any threshold A_s the Legislator may implement instead of $\tilde{A}$, the generic coalition l is willing to pay

$$W_l\left(A_s,\tilde{A}\right)=\sum_{i\in l}w_i\left(A_s,\tilde{A}\right)=\left(1/4\right)\sum_{i\in l}\left[\left(\tilde{A}-\hat{A}_i\right)^2-\left(A_s-\hat{A}_i\right)^2\right]-\Psi,$$

which is the sum of the maximum individual rational y of each lobby $i\in l$—$w_i\left(A_s,\tilde{A}\right)$—less the fixed fee. The Legislator, first, chooses an A_s for each $l\in\Omega$

$$\hat{A}_s\left(l\right)\in\arg\max_{A_s}-\left(1-\mu\right)\tilde{\Lambda}\left(A_s\right)+\mu\left|i\right|W_l\left(A_s,\tilde{A}\right),\tag{4}$$

and then she chooses her preferred bargaining coalition

$$\hat{l}\in\arg\max_{l\in\Omega}-\left(1-\mu\right)\tilde{\Lambda}\left(\hat{A}_s\left(l\right)\right)+\mu\left|i\right|W_l\left(\hat{A}_s\left(l\right),\tilde{A}\right).\tag{5}$$

Therefore, a subgame perfect equilibrium of the endogenous lobbying game is given by a threshold function $\hat{A}_s\left(l\right)$ and a coalition $\hat{l}$.[11] If the Legislator favors special interests, the outcome of the bargaining is a compromise between the socially optimal $\tilde{A}$ and the rules preferred by the lobbies included in the winning coalition. Given that citizens' loss functions are quadratic, A_s takes the form of a weighted average further away from $\tilde{A}$ the less democratic society is and the higher is the cultural heterogeneity. Indeed:

Lemma 2.A: *Let attribute u be unobservable. For any coalition $l\in\Omega$, there is a unique optimal threshold $A_s\left(l_s\right)$ that solves problem* (4):

$$\hat{A}_s\left(l\right)=\left[\left(1-\mu\right)\tilde{A}+\mu\sum_{i\in l}\hat{A}_i\right]\left(1-\mu+\left|l\right|\mu\right)^{-1},\tag{6}$$

where $\left|l\right|$ represents the number of lobbies participating to coalition l.

Yet, the Legislator favors special interests only if the polarization between groups is so wide that the equilibrium perquisites overcome the losses of social welfare:

Lemma 2.B: *Let attribute u be unobservable. There are two levels of cultural hetero-*

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[11]I also maintain that the Legislator appropriates the entire willingness to pay of the winning coalition: given the model's focus on the *ratio decidendi*, the hypothesis is immaterial.

geneity $\bar{\pi}$ and $\bar{\bar{\pi}}$, falling with the inverse measure of democracy μ and increasing with the collective action costs Ψ, such that: $\bar{\bar{\pi}} \geq \bar{\pi}$; for $\pi \geq \bar{\pi}$ coalitions $\{L\}$ and $\{H\}$ pay Ψ, and for $\pi < \bar{\pi}$ they don't; for $\pi \geq \bar{\bar{\pi}}$ the Legislator is indifferent between $\{L\}$ and $\{H\}$ and the loss of social welfare is $(\bar{A} - \underline{A})^2 (\mu^2/8)$, and for $\pi < \bar{\bar{\pi}}$ the Legislator does not accept bribes and the loss of social welfare is 0. No coalition pays a $\Psi > \bar{\Psi} = 1/16$.

Thus, democracy covers a second role in the equilibrium. Whenever side payments are positive, not only the equilibrium threshold is nearer to the second best $\tilde{A}$ the lower μ is, but also the Legislator finds it less appealing to move the *ratio decidendi* toward the bliss point of the winning group the more efficient the political process is—i.e., $\bar{\bar{\pi}}$ falls with μ.

The optimal level of centralization.—Whenever $K < \infty$, Case law can outperform Statute law only when the extent of cultural heterogeneity is sufficiently wide—i.e., $\pi \geq \bar{\bar{\pi}}$, and:

$$\tilde{\Lambda}\left(\hat{A}_s\right) > \mathrm{E}\left(\tilde{\Lambda}\left(\hat{A}_c\right)\right) \leftrightarrow (\bar{A} - \underline{A})^2 (\mu^2/8) > (\bar{A} - \underline{A})^2 [8(1 + 2K)]^{-1} \leftrightarrow \mu^2 > (1 + 2K)^{-1}.$$

This last inequality implies the following comparison between law-making institutions:

Proposition 1: *Let attribute u be unobservable. Statute law performs weakly better than Case law at low levels of cultural heterogeneity—i.e., for $\pi < \bar{\bar{\pi}}$. For $\pi \geq \bar{\bar{\pi}}$, there is a level of the inverse measure of democracy $\bar{\mu}(K)$ falling with the institutional relevance of stare decisis K and such that $\bar{\mu}(\infty) = 0$, $\bar{\mu}(0) = 1$, Statute law outperforms Case law when the political process is sufficiently efficient—i.e., for $\mu < \bar{\mu}(K)$—and is weakly worse otherwise.* Whenever side transfers affect the equilibrium rule, Statute law assures certainty at the cost of a biased rule.[12] Case law, instead, achieves the socially optimal long run rule but at the cost of volatility.[13] Both costs are a function of the extent of disagreement between the groups—i.e., the distance $(\bar{A} - \underline{A})^2$. Therefore, for $\pi \geq \bar{\bar{\pi}}$, whether Statute law or Case law prevails is only due to the comparison between overruling costs and the strength of democratic institutions. Given a less than infinite institutional relevance of *stare decisis*, a society sufficiently able to assure the probity of her representatives will embrace Statute law.[14] *A*

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[12]Statute law would become volatile but unbiased if selected in each period by a Legislator accepting side contracts: yet, the same inequality would identify the optimal institution. The proofs of these and all the robustness contained in the following footnotes are available from the author upon request.

[13]With fixed overruling costs—as in Gennaioli and Shleifer (2007a), there is a π^* such that for $\pi \leq \pi^*$ (for $\pi > \pi^*$) the rule fixed by the first appellate judge sticks forever (judges with opposite biases overrule each other) and the loss of welfare is $(1/8)(\bar{A} - \underline{A})^2$. In this scenario, Case law is always sub-optimal for $K < \infty$.

[14]Citizen-candidates running to become the Legislator gather the same number of votes. Provided that the winner is not too insulated from—i.e., she puts a sufficiently high weight on the losses of welfare of—the

fortiori, when the cultural distance is small—$\pi < \bar{\bar{\pi}}$, Statute law always outperforms Case law. This basic pattern strikingly conflicts with the Fernandez and Ponzetto's (2008) claim that Case law is evolutionary superior to Statute law when no social changes affect preferences and that a mixed system can be optimal otherwise.[15] The deep reason is that they model Statute law as a process of exogenous lobbying where the active ones are random. Yet, as already emphasized, a similar set up not only comes very short in explaining which coalition is willing to bargain with the Legislator but also what the role of cultural heterogeneity is.[16]

The basic idea illustrated in proposition 1 remains qualitative unchanged under different hypotheses on the adjudication microstructures. This is the case when litigation is endogenous or only a subset of cases can give rise to a precedent change, when appellate judges are concerned by the fact that future colleagues could modify their choice and when they can be bribed and bulled by powerful litigants (as in Glaeser and Shleifer, [2002]).[17] In all these cases, the above pattern survives because Case law continues to converge to the socially optimal rules but at the cost of a variance which could also be a function of other details of the adjudication process—i.e., the strength of judges' forward-looking concerns (see Fernandez and Ponzetto, [2008]) and the one of special interests. Particularly interesting is the case in which appellate judges play the endogenous lobbying game. If they put a sufficiently small weight on special interests, nothing will change. If, instead, such a weight is sufficiently high, they will implement a compromise among the precedent, their own cultural group's bliss point and the one of the other group. Given symmetry, Case law will converge to the second best and will have a volatility depending on the weight on special interests—proofs available from the author. Next, I shall consider several other extensions to the basic model. First, I shall look at a world where there is also a third group with no cultural biases. Second, I shall allow society to trade off cultural biases with efficiency concerns. Third, I shall

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opposing party, Statute law performs better when side transfers are zero and again a comparison similar to that illustrated in proposition 1 describes the relative merits of the two institutions.

[15]Differently, the comparison described in proposition 1 is not affected by social changes that shift the preference distribution because such shocks would only affect the degree of disagreement between groups.

[16]Relaxing the implicit assumption that side transfers and collective action fees are not socially wasteful would only reinforce the main result. The only difference, indeed, is that statutes would be even less efficient when side transfers are positive. Also, only the algebra (interpretation) but not the message of lemma 2.B changes when the collective action cost is paid by each group in a coalition (borne before the Legislator's decision).

[17]The main results survive also when there are two periods as in Gennaioli and Shleifer (2007a). In this case, for π sufficiently high, the first period judges chooses a compromise overruled by a judge of the same type.

relax the assumption that the Constitutional table is benevolent. Fourth, I shall consider a scenario where Case law even without evolutionary properties has a flexibility advantage due to the fact that appellate judges can introduce new information distinguishing the precedent. The basic comparison laid down above is not upset under all these different hypotheses.

2.2   Robustness

Introducing an unbiased group.—The population is equally split among the unconcerned group with $\beta_L = \lambda\pi$, the concerned one with $\beta_H = \lambda/\pi$ and a third unbiased group with $\beta_E = \lambda$. Again, the Legislator chooses an extremist coalition whenever π is sufficiently high; yet, the presence of the unbiased group breaks the Legislator's indifference and:

Lemma 3: *Let attribute u be unobservable. For any coalition $l \in \Omega$, there exists a unique optimal threshold $\hat{A}_s(l)$ defined by (6) and there are levels of cultural heterogeneity $\tilde{\pi}_{\tilde{l}}$ and $\tilde{\tilde{\pi}}_{\tilde{l}}$ for $\tilde{l} = \{\{L\},\{H\}\}$ falling with the inverse measure of democracy μ and rising with the collective action costs Ψ such that: $\tilde{\tilde{\pi}}_{\tilde{l}} \geq \tilde{\pi}_{\tilde{l}}$ for all $\tilde{l}$; for $\pi \geq \tilde{\pi}_L$, coalition $\{L\}$ ($\pi \geq \tilde{\pi}_H$, $\{H\}$) pays Ψ, and for $\pi < \tilde{\pi}_L$ ($\pi < \tilde{\pi}_H$) she does not; for $\lambda \leq 1$ and $\pi \geq \tilde{\tilde{\pi}}_L$ ($\lambda > 1$ and $\pi \geq \tilde{\tilde{\pi}}_H$) the Legislator chooses $\{L\}$ ($\{H\}$) and the loss of social welfare equals $\left(A^* + \underline{A} - 2\bar{A}\right)^2 (\mu^2/18)$ $\left(\left(\bar{A} + A^* - 2\underline{A}\right)^2 (\mu^2/18)\right)$, and for $\lambda \leq 1$ and $\pi < \tilde{\tilde{\pi}}_L$ ($\lambda > 1$ and $\pi < \tilde{\tilde{\pi}}_H$) she selects $\tilde{A}$ and the loss of social welfare equals 0. No coalition pays a $\Psi > \tilde{\Psi} = 1/27$.[18]*

When the extent of cultural heterogeneity is sufficiently high, the Legislator picks the coalition who is further away from the technologically efficient rule in order to maximize bribes; in this case for $K < \infty$ Case law can outperform Statute law if and only if:

$$\tilde{\Lambda}\left(\hat{A}_s\right) > \mathrm{E}\left(\tilde{\Lambda}\left(\hat{A}_c\right)\right) = \left[3\left(\bar{A}\right)^2 + 3\left(A^*\right)^2 + 3\left(\underline{A}\right)^2 - \left(\bar{A} + A^* + \underline{A}\right)^2\right]\left[18\left(1 + 2K\right)\right]^{-1}.$$

This last inequality leads directly to the following proposition:

Proposition 2: *Let u be unobservable. Statute law is weakly better than Case law for $\lambda \leq 1$ and $\pi < \tilde{\tilde{\pi}}_L$ and for $\lambda > 1$ and $\pi < \tilde{\tilde{\pi}}_H$. For $\lambda \leq 1$ and $\pi \geq \tilde{\tilde{\pi}}_L$ ($\lambda > 1$ and $\pi \geq \tilde{\tilde{\pi}}_H$), there is a level of the inverse measure of democracy $\tilde{\mu}_L$ ($\tilde{\mu}_H$) falling with institutional relevance of stare decisis K and with the extent of cultural heterogeneity π such that Statute law performs strictly better than Case law for $\mu < \tilde{\mu}_L$ ($\mu < \tilde{\mu}_H$) and weakly worse otherwise.*

Heterogeneity has now also an intensive margin: as it rises the level of μ over which Case

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[18]I suppose that for $\lambda = 1$ the Legislator inclines for $\{L\}$. The hypothesis is without loss of generality.

law outperforms Statute law falls. Thus, the main model's message remains true even when collective actions costs are zero. Even if all the results stand when the unbiased group is considered, in the following I shall consider, for simplicity, only two groups.

Accounting for tastes versus efficiency.—Let me now consider a world in which technological efficiency is weighted against preferences aggregation, in such a way that group i's losses are $[(1-T)/2]\,\hat{A}_i\left(1-A^E\right)^2 + [(1-T)/2]\left(1-\hat{A}_i\right)\left(A^E\right)^2 + (T/2)\left(A^E - A^*\right)^2$ where T is the common relative technological concern in the efficiency—notice the apex E—regime. Group i's bliss point is now $(1-T)\,\hat{A}_i + TA^*$. Consequently, $\Lambda_i^E\left(A^E\right)$ is proportional to $(1/2)\left(A^E - \hat{A}_i^E\right)^2$ and the optimal second best rule is a compromise between each group's bliss point and A^*. Under Case law, judge i's objective function at time t is $-(1/2)\left(A^E - \hat{A}_i^E\right)^2 - (K/2)\left(A_{c,t}^E - A_{c,t-1}^E\right)^2$. The unique and global solution is $\Gamma\left(K\right)A_{c,t-1}^E + [1 - \Gamma\left(K\right)]\,\hat{A}_i^E$, and judge-made law follows an auto-regressive process converging to the ergodic distribution $N\left(E\left(\hat{A}_i^E\right), V\left(\hat{A}_i\right)(1-T)^2\left(1+2K\right)^{-1}\right)$. So the loss of social welfare is proportional to $(1-T)^2 V\left(\hat{A}_i\right)\left[2\left(1+2K\right)\right]^{-1}$. The Legislator, instead, selects $\hat{A}_s^E = \left[(1-\mu)\,\tilde{A}^E + \mu\sum_{i\in l}\hat{A}_i^E\right]\left(1-\mu + |l|\,\mu\right)^{-1}$ and the same patterns described by lemma 2.B when $\tilde{A}$ and $\hat{A}_i$ are replaced by $\tilde{A}^E$ and $\hat{A}_i^E$ respectively arise—see appendix. For $K < \infty$, Case law outperforms Statute law if only if $\pi \geq \bar{\bar{\pi}}_E$ and

$$\left(\bar{A} - \underline{A}\right)^2 \mu^2 (1-T)^2 > \left(\bar{A} - \underline{A}\right)^2 (1+2K)^{-1}(1-T)^2 \leftrightarrow \mu^2 > (1+2K)^{-1}.$$

Provided that citizens have the same relative concerns for technology efficiency, the evolution of the legal system is again driven by the cultural heterogeneity and the extent of democracy only. Thus, when looking at the impact of legal institutions on economic outcomes, we should find no significant differences among countries provided that they did not remain trapped in the transplanted tradition due to high switching costs—see section 4 below—and the measure of development we use accounts for both tastes and technological efficiency.[19]

Endogenous collusion proofness.—Consider a setting in which the Constitutional table can reform the law making rule in any period and cares only about perquisites or bribes obtained

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[19]Yet, the existing literature has focused only on measures of the impact of the law on technological efficiency which are in practice a function of $\left(A^E - A^*\right)^2$. Following this approach and using the codification devised in the present analysis, we would observe that at sufficiently low level of π Statute law outperforms Case law because it produces certain and unbiased rules. If instead π is sufficiently high and only the long run bias of the law (both the long run bias of the law and her volatility) affects the dimension studied—e.g. regulation of entry (creditor rights), Case (Statute) law would produce better outcomes because unbiased (certain).

colluding with one of the two groups. In the following I shall qualify the choice of the Constitutional table as *collusion proof* whenever no group is able to offer in $t \geq 0$ more than the other group in order to have the socially suboptimal institution introduced.

In $t = 0$ the expected long run loss of welfare for each group equals $(1/8)\left(\bar{A} - \underline{A}\right)^2 (1 + \mu^2)$ under Statute law and $(1/8)\left(\bar{A} - \underline{A}\right)^2 \left[1 + (1 + 2K)^{-1}\right]$ under Case law. Thus, no group has an incentive to side contract with the Constitutional table because they prefer Statute law for $\mu^2 < (1 + 2K)^{-1}$ and Case law for $\mu^2 > (1 + 2K)^{-1}$. The intuition behind this result is straightforward: under a veil of ignorance, each group is faced with a problem in all similar to the one solved by the Constitutional table in $t = 0$ and so the institutional design phase cannot be upset by collusion. As shown in the appendix, the situation is different for a generic $t \geq 1$. The two groups care only about the long run losses of welfare which are the same across groups under Case law. Also, this last value is strictly greater (lower) than the long run losses that the group favored (not favored) by the Legislator stands under Statute law. Therefore, when $\mu^2 < (1 + 2K)^{-1}$ and Statute law is optimal, collusion can be beneficial for the two groups: the losing group is willing to side contract to have Case law introduced and the winning group to have Statute law retained. Yet, as the appendix shows, the losing group's willingness to pay can be the highest only for $\mu^2 > (1 + 2K)^{-1}$, which is not the case. When $\mu^2 > (1 + 2K)^{-1}$ and Case law is in place, because the identity of the winner under Statute law is uncertain, the collusion game with the Constitutional table reduces to the ex ante comparison discussed in proposition 1. All in all, the key lesson coming from this exercise is that the only reasonable assumption underlining any empirical study of the evolution of law-making institutions is that societies will seek to attain their optimal institutional arrangement as if a self sustaining Coasian bargaining was in place.

Distinguishing.—Stare decisis requires appellate judges to abide by the holding of the first court, but still allows them to distinguish the precedent by introducing a new adjudication dimension into consideration. This ability to create "complex balancing tests based on marginal trade-offs between different factors" (Fernandez and Ponzetto, 2008) can be easily captured supposing, as in Fernandez and Ponzetto (2008), that eventually the second dimension u becomes observable and appellate judges can implement the optimal two-dimensional rule $B = 1 - a$ at a positive but not excessive fixed cost $K^D > 0$. Focusing on this information

advantage of Case law and shutting down overruling, I obtain that:

Lemma 4: *Suppose that $K = 0$, $K^D \in (0, 1/2)$, and that attribute u becomes observable. There always exists a level of cultural heterogeneity π^D increasing with the distinguishing cost K^D such that for $\pi \geq \pi^D$ the optimal two-dimensional rule $B = 1 - a$ is introduced.*
Whenever distinguishing constitutes the key feature of the doctrine of *stare decisis*, Case law is essentially inferior to Statute law so long as ignorance on u does. If the latter becomes observable, conflicts between groups with opposite biases vanish and all judges agree on the reduction at zero of the errors provided that cultural heterogeneity is sufficiently high to justify the payment of the fixed charge. In this last scenario, Case law achieves the first best and overcomes Statute law. Again this exercise points in the direction of proposition 1:

Proposition 3: *Suppose that $K = 0$, $K^D \in (0, 1/2)$, and that attribute u becomes observable, Statute law outperforms Case law at low level of cultural heterogeneity—i.e., whenever $\pi < \pi^D$—and it is strictly worse otherwise—i.e., for $\pi \geq \pi^D$.*
Crucially, the pattern remains qualitatively similar when the flexibility advantage of Case law is less strikingly and the new informative dimension can be manipulated by distinguishing judges in order to reflect their own cultural biases. This is, for instance, the case when appellate judges choose thresholds $\underline{B}$ and $\overline{B}$ such that O is held liable if $a < \hat{A}_c$ and $b \geq \underline{B}$ or $a \geq \hat{A}_c$ and $b \geq \bar{B}$ (see Gennaioli and Shleifer, [2007a]).

3   Rules versus Discretion in Adjudication

Scholars in comparative law (Merryman, 1969; Damaška, 1986; Zweigert and Kötz, 1998; Glendon, Gordon, and Carozza, 1999) see the reliance on broad adjudication principles rather than specific "bright line" rules, as a defining feature of the Common as opposed to the Civil law tradition. In section 2, I solved the model under the maintained assumption that bright line rules of adjudication were always in place—i.e., assuming that the rule selected by the law-maker is strictly respected by lower adjudicating courts. In general, instead, under more flexible principles of adjudication—hereafter *discretion*, lower courts have the right to adjudicate a case according to a *ratio-decidendi* different from the one chosen by the law-maker by, for instance, manipulating the evidence (Gennaioli and Shleifer, 2008). In this

section, I show that this procedurally accepted form of discretion emerges as an efficiency attempt to blunt the losses driven by the volatility of Case law. In accordance with her procedural nature I consider a mild form of discretion (see Merryman, [1969]).

Bearing a cost $\theta > (\alpha/2)\left(\bar{A} - \underline{A} - \alpha\right) + \varepsilon$ with $\varepsilon \geq 0$ very small, lower courts can use any *de facto* $A_{j,t}^F$ with $j = \{c, s\}$ whose distance α from the *de jure* $A_{j,t}^J$ is lower than $\bar{\alpha} \equiv \left(\bar{A} - \underline{A}\right) \min\left\{1 - (1 + 2K)^{-1/2}, 2K\left(1 + 3K + 4K^2\right)^{-1}\right\}$. Lower courts are randomly picked from the population and maximize $(1/2)\left(A_{j,t}^F - \hat{A}_i\right)^2$. As proved in the appendix, this assumptions assure that a H lower court uses $\hat{A}_{j,t}^J - \alpha$ if $\hat{A}_{j,t}^J > \tilde{A} = E\left(\hat{A}_i\right)$ and sticks to $\hat{A}_{j,t}^J$ if $\hat{A}_{j,t}^J \leq \tilde{A}$; symmetrically a type L lower court chooses the threshold $\hat{A}_{j,t}^J + \alpha$ if $\hat{A}_{j,t}^J < \tilde{A}$ and $\hat{A}_{j,t}^J$ otherwise; $\hat{A}_{j,t}^J$ equals the $\hat{A}_{j,t}$ found in section 2. The loss of social welfare is now proportional to $(1/2) E\left(A_{j,t}^F - \hat{A}_i\right)^2$ where A_j^F is the long run *de facto* rule. Introducing discretion entails a social set up cost $\Theta > 0$. I also posit for simplicity that Case law is in its steady state and, in each period, first an appellate judge fixes a precedent and then a lower court can use discretion. A type i appellate judge not only bears the usual justification cost, but also cares about the expected distance between the *de facto* rule in period t and $\hat{A}_i$; therefore, she maximizes $-(1/2) E\left(A_c^F(i) - \hat{A}_i\right)^2 - (K/2)\left(A_{c,t}^J(i) - \hat{A}_{c,t-1}^J\right)^2$, where $E\left(A_c^F(i) - \hat{A}_i\right)^2 = V\left(A_c^F(i)\right) - \left[E\left(A_c^F(i)\right) - \hat{A}_i\right]^2$. First, I shall characterize the equilibrium under Case law.

As shown in the appendix, under the hypotheses on α, the *de jure* rule is: $\hat{A}_{c,t}^J(i) = \Gamma(K) A_{c,t-1}^J + [1 - \Gamma(K)]\left(\hat{A}_i(i) + \tilde{\alpha}/2\right)$, with $\tilde{\alpha}$ equal to $\alpha(-\alpha)$ when $i = L$ ($i = H$). It follows that $\hat{A}_{c,t}^J(L) > E\left(\hat{A}_i\right)$, $\hat{A}_{c,t}^J(H) < E\left(\hat{A}_i\right)$ and that the *de jure* rule converges to the distribution with mean $E\left(\hat{A}_i\right)$ and variance: $\left[V\left(\hat{A}_i\right) + \alpha^2/4 + \left(\bar{A} - \underline{A}\right)(\alpha/2)\right][(1 + 2K)]^{-1}$. Each judge moves $\hat{A}_{c,t}^J(i)$ nearer to her own bias in order to counteract the action of a lower court with opposite bias. Yet, discretion more than compensates this strategic bias. Indeed, $A_c^F(i)$ equals $\hat{A}_{c,t}^J(i)$ if the lower court's type is i and $\hat{A}_{c,t}^J(i) - \tilde{\alpha}$ if the lower court's type is $-i$. This not only implies that the *de facto* rule is unbiased, being $E\left(\hat{A}_{c,t}^F\right) = E\left(\hat{A}_{c,t}^J\right) + (1/2) \Pr\left[\hat{A}_{c,t}^J > E\left(\hat{A}_i\right)\right](-\alpha) + (1/2) \Pr\left[\hat{A}_{c,t}^J < E\left(\hat{A}_i\right)\right]\alpha = E\left(\hat{A}_i\right)$, but also that its variance is strictly lower than $V\left(\hat{A}_i\right)[(1 + 2K)]^{-1}$. Thus, for $\alpha \leq \bar{\alpha}$, the volatility of the prevailing threshold under the pure Common law tradition—i.e., Case law plus discretion in adjudication—is lower than the one under the mixed system using bright line rules. All in all, discretion will be introduced if $\Theta < \bar{\Theta}$—with $\bar{\Theta}$ found in the appendix,

while for $\Theta > \bar{\Theta}$, the hybrid tradition prevails. Germany, Switzerland and the Scandinavian countries are examples of this tradition (see footnote 22 and Zweigert and Kötz, [1998]).

Consider now Statute law, the objective function in (4) rewrites as:

$$-\left[(1-\mu)/2\right]\left(A_s^J + \tilde{\alpha}/2 - \tilde{A}\right)^2 + (\mu/2)\sum_{i \in l}\left[\left(\tilde{A} - \hat{A}_i\right)^2 - \left(A_s^J + \tilde{\alpha}/2 - \hat{A}_i\right)^2\right] - 2\mu\Psi.$$

Given the restrictions on α, the Legislator is always able to foresee the lower courts' actions and neutralize—in expectation—the use of discretion choosing the threshold

$$\hat{A}_s^J(l) = \left[(1-\mu)\tilde{A} + \mu\sum_{i \in l}\hat{A}_i\right](1 - \mu + |l|\,\mu)^{-1} - \tilde{\alpha}/2.$$

The *de facto* rule $A_s^J + \tilde{\alpha}/2$ under the pure Civil law tradition has an expected value equal to the *de jure* rule prevailing when discretion is forbidden and, when biased, a variance equal to $\alpha^2/2$. Therefore, the pure Civil law system is retained for every $\Theta > 0$. All in all, when discretion in introduced non only proposition 1 continues to hold but I also have that:[20]

Proposition 4: *Let attribute u be unobservable, and the extent of discretion be limited— i.e., $\alpha < \bar{\alpha}$: if Statute law is in place, discretion is never introduced; if instead Case law is in place, discretion is introduced only when the set up cost is sufficiently small—i.e., $\Theta \leq \bar{\Theta}$.*

4   Empirical Implications

The basic idea of the theory is that holding fixed the institutional relevance of precedents, under minimal assumptions on the adjudication microstructures, Case law is the optimal law making institution in relatively heterogeneous and/or less democratic societies.[21] The comparison holds true under very different hypotheses on the political making process and, also, whether or not society trades off cultural biases with efficiency concerns and whether or not appellate judges are corrupted or can introduce new information into adjudication. Even more crucially, section 2.2 gives a positive characterization to this normative result: whether or not the institutional design phase is affected by powerful special interests, a society will adopt the law making institution which is optimal for its extent of cultural heterogeneity and democracy. This set of implications motivates my first empirical test. Starting from the features of the transplantation wave, Berkowitz, Pistor, and Richard (2003) have introduced

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[20]Because both the heterogeneity threshold under which Statute law prevails over Case law and the volatility of Case law rise with α, proposition 4 would be overturned if the extent of discretion became sufficiently high. Yet, this uncontrolled use of discretion does not match the procedurally accepted level studied here.

[21]Indeed, as proposition 2 shows, Statute law is more easily optimal the more efficient democracy is also in a completely homogeneous society, provided that fixed costs are negligible and there is an unbiased group.

the distinction between countries that are *origins*—because they have developed their legal order internally—and countries that are *transplanted*—because they have received their legal order externally either through colonization or by adoption of the tradition considered most advanced at the time.[22] Yet, as the model suggests, transplanted countries penalized by the transplantation match had all the incentives to reform their institutions toward their optimal legal order. This means that in the presence of switching costs, which are bound to be huge when new legislative power is suddenly given to either the legislature or to the judiciary, proposition 1 to 3 can be restated as a prediction on the probability of a reform of the transplanted law making institution as follows:

Prediction 1: *The likelihood of a reform toward Case (Statute) law in countries to which Statute (Case) law was transplanted will increase (decrease) with the extent of cultural heterogeneity and fall (rise) with the quality of political institutions.*

Clearly, in the background of this prediction, there is also the presumption that the institutional relevance of *stare decisis* is not country specific. Scholars in comparative law have classically considered the importance of this institution as a crystallized by-product of the *origins'* legal writings and High Courts' jurisprudence (Damaška, 1986; Zweigert and Kötz, 1998). The British model of precedent is a case in point. At the beginning of the nineteenth century, the runaway of legal positivism over legal naturalism built the consensus position that, in overruling or distinguishing a precedent, appellate courts should always consider the hierarchical rank of the court which set it, whether or not the precedent was chosen *per incuriam*, and the precedent's age (see Bankowski, MacCormick, and Marshall, [1997]: pp. 315-353). These precise and stable factors have guided the judicial law-making activities of those countries to which the English Case law was transplanted (David et al., 1995: U-107, U-108).[23] Similarly, the German "free law" movement shaped other non British models of

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[22]While a pure Common law tradition was transplanted to England's ex colonies, France exported a pure Civil law tradition to continental European countries and from here to their occupancy (Zweigert and Kötz, 1998). Differently from France, Austria and the Soviet Union allowed an higher discretion to adjudicating courts (David et al., 1995). Finally, Denmark, Germany, Sweden, and Switzerland have relied on quite hard-line adjudication procedures entrusting a key role to judge-made law (David et al., 1995)—see footnote 24.

[23]This homogenization was institutionalized in 1833 when the Judicial Committee of the Privy Council was entrusted with the power of unifying the action of the Commonwealth appellate courts. Even if abolished by eight countries in my sample, the Committee's decisions maintain a recognized value (David et al., 1995); besides, considering an indicator for the non British models of precedents does affect my analysis.

precedents introducing practically equal overruling rules (see Grechenig and Gelter, [2007]). This historical evidence justifies the above mentioned background assumption.

As clarified in section 3, a legal tradition is a well defined bundle of law making and adjudication institutions structurally interrelated by the bias versus volatility trade off. Informed by proposition 4, the second testable prediction deals with the probability of a reform of the whole set of institutions characterizing the transplanted legal tradition and reads as follows:

Prediction 2: *The likelihood of a reform toward Common (Civil) law—i.e., Case law plus flexible (Statute law plus bright line) adjudication procedures—in countries to which Statute (Case) law was transplanted will increase (decrease) with the extent of cultural heterogeneity and fall (rise) with the quality of political institutions.*

5 Civil Law versus Common Law: Evidence

Next, I will test the two empirical predictions, comparing first Statute law and Case law.

5.1 *Statute Law versus Case Law: What do the Data Say?*

I require a sample of reforms from one to the other law making institution and proxies for both the extent of cultural heterogeneity and the quality of political institutions.

The dependent variable.—Two are the main data sources: 1. the first volume of the *International Encyclopedia of Comparative Law* written by several illustrious scholars of comparative law—e.g., Conard, Von Mehren, Zweigert—under the harmonizing editorial effort of René David and listed among the references as David et al. (1995); 2. the appendix accompanying Djankov et al. (2003) to which I will refer as Acartürk et al. (2005). The two publications report a detailed description of the history of the legal system and of its sources of law for 164 countries for which I have sufficient data on the extent of both cultural heterogeneity and democracy. Starting from this account, I have coded the law-making rule in place in each country at independence and in 2000 using the following definition:[24]

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[24]Accordingly, I code Denmark, Germany, Sweden, Switzerland and the UK as exporter of Case law. Germany and Switzerland are two controversial cases; yet, "the maintenance of the general structure of the BGB [German Civil code] is really the work of *courts*" (Zweigert and Kötz, 1998: pp. 153) who applied the BGB clauses 157, 242 and 826. The Swiss Civil Code gathers similar rules. Coding the two countries as exporter of Statute law does not affect my results. My codification for the year 2000 is consistent with that developed by La Porta et al. (2004): out of the 68 countries common to the two samples, only seven are coded differently.

Definition: *A country uses Case law in a given year if the decisions of a subset of appellate courts but not only of the Constitutional court are considered as a source of law and treated as binding by lower courts. A country employs Statute law, otherwise.*

Restricting the group of countries which received Case law by including only those in which only the decisions of all appellate courts are treated as binding or widening the same group by adding also those countries in which only the Constitutional-Cassation court decisions are considered as binding does not change the main qualitative results of the empirical exercise. I observe that each country switches at most once but not the timing of each reform; identifying the latter in order to add a time dimension to the analysis is an agenda for future research. I treat Austria, Denmark, France, Germany, the Soviet Union, Sweden, Switzerland and the United Kingdom as *origins* countries.[25] As a result, the data set gathers 156 transplanted countries which are listed in Table 1.[26]

Ten countries have switched from Statute law to Case law, sixteen switched from Case to Statute law, and 70 (60) countries kept Statute (Case) law. Among these reforms, which can be seen as the upshots of the Coasian bargaining discussed above, some were peaceful, other more agitated. In spite of discussing each of them, I shall illustrate the enlightening example of Mexico, which gained independence from Spain in 1821 inheriting also Statute law. After a century of inefficient governments which flowed into the 1910-1920 revolution, president Venustiano Carranza introduced into the new 1917 constitution a rule known as "compulsory case law" in order to satisfy the rebels' demand for a greater decentralization of powers (see Gonzales, [2002]). "Under this rule, the decisions pronounced by certain courts become compulsory to courts of the same standing and to lower courts" (David et al., 1995: pp. M-68). In this way, Mexico was able to change the culturally distant principles of the Spanish legislation for the more progressive English system (Gonzales, 2002).

Proxying cultural heterogeneity and democracy.—Testing the model's predictions also re-

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[25] I exclude from this group Finland, Norway and the U.S.A. because at independence the legal system was set up by Swedish, Danish and English lawyers respectively looking mainly at their native lands' institutions (see David et al., [1995]). The experience of the Soviet Union was instead more autonomous. Switching to the different codification proposed by Berkowitz, Pistor, and Richard (2003) brings very similar results.

[26] Klerman et al. (2009) claim that, among these countries, Ethiopia, Japan and Thailand chose voluntarily their legal order as "to fit their culture." Yet, they started their post second world war independent political history with institutions imported in the 19th century from the European codes considered more advanced at the time (David et al., 199]). Excluding from the sample some of them does not strongly affect my estimates.

quires building for the whole sample measures of the extent of cultural heterogeneity and the quality of political institutions. With regard to the former, I use two proxies. While one measures the cultural heterogeneity within the transplanted country, the other gauges the cultural distance between the plurality ethnic group—i.e., the one with the largest share of the population—in the country which chose the law-making institution and the one in the transplanted country.[27] This last proxy helps in clarifying the impact on the evolution of the legal system of the initial transplantation mismatch and of the preference polarization when one group can completely exploit the other. The latter is, for instance, the case when distinguishing is the procedure most used by appellate judges—see section 2.2. The higher is the distance between the long lasting preferences of the transplanted population and those of the population who chose the preferences aggregation device, the higher should be the incentive of the new independent country to reform the law making institution. Yet, creating a meaningful proxy for the cultural distance between populations is not an easy task.

Cavalli-Sforza, Menozzi, and Piazza (1994)—hereafter CMP—suggest that an index of genetic distance, the coancestry coefficient, is a natural proxy of cultural distance because it captures "the degree of genealogical relatedness of different populations over time. Thus, it can be interpreted as a general metric for average differences in characteristics transmitted across generations"(Spolaore and Wacziarg, 2009) including cultural and moral values. When two populations split apart, their genes start to change as a result of random genetic drift, natural selection and migration. The coancestry index is the sum of the differences in the frequencies of DNA polymorphisms—i.e., situations in which a DNA sequence exists in at least two different forms or alleles—affected only by random drift and not by selection between aboriginal populations in place before 1500—i.e., before colonization fueled the greatest migration episode in human history.[28] As a result, larger values of the coancestry coefficient reflect a longer separation between populations—due to the process of random drift only—and, hence, on average, a larger difference in cultural characteristics.[29] Clearly

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[27]Making use of the distance between the plurality ethnic group in the transplanting country and that in the transplanted one produces results almost indistinguishable from those discussed below. Other proxies, like the political polarization or the difference in values surveys' scores, are available only for smaller samples.

[28]An example is clarifying: even if the ABO blood group alleles are present in all populations, the frequency of each allele varies substantially across populations so that the estimated frequency of the O allele is 61% within Africans and 98% in American Natives. These differences arise for many other genes or DNA sequences.

[29]In support of this view, Desmet et al. (2009) have documented a strong relation between a measure of

enough, the index is also immune to measurement errors and exogenous to all those unobserved historical patterns which affected preferences and political institutions during and after the transplantation experience. CMP calculated the coancestry coefficient at the macropopulation level. Consequently, I have followed Spolaore and Wacziarg (2009) and built the index in three steps. First, I have identified the plurality ethnic group in the countries I was interested in using ethnic composition data from Alesina et al. (2003) and information from the Encyclopedia Britannica (Britannica, 2008).[30] Next, I have matched ethnic group labels with the macro-populations reported by CMP.[31] Finally, I have normalized the index obtained in order to range between 0 and 1. I shall refer to this variable as *Genetic_Distance*.

CMP also document the strong link between population's linguistic roots and genetic pools. This link, which is a byproduct of the differentiation of cultural transmission instruments between population increasingly distant from the common ancestors, makes the ethnic and linguistic fractionalization in a country a natural proxy of the "within" cultural heterogeneity. The results presented below are based on the average of 5 indexes approximating the probability that two individuals randomly chosen from the population differ in ethnic or linguistic characteristics in 1960—hereafter *Av_Elf*. *Av_Elf* was first collected by a Soviet ethnographic source (Bruk and Apenchenko, 1964) and then updated by Persson and Tabellini (2003); it measures the level of lack of ethnic and linguistic cohesion within a country and ranges from 0—i.e., homogeneous—to 1—i.e., strongly fractionalized. Switching to the fractionalization indexes proposed by Alesina et al. (2003) or the absolute number of ethnic or linguistic groups would lead to qualitatively similar estimates.

Turning to democracy, I will make use of the variable *Constraint_Executive* defined as the average, normalized in order to range between 0 and 1, of the constraints on the exec-

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opinion poll distances, based on answers from the section on perceptions of "life, family and religion and moral" of the World Value Survey, and the coancestry coefficient. Building on this evidence, Guiso, Sapienza, and Zingales (2009) have used the index as an instrument for bilateral trust in trade gravity regressions, and Spolaore and Wacziarg (2009) have employed it as a proxy of family-transmitted characteristics.

[30]Using an index of weighted genetic distance—i.e., averaging the distances between the plurality ethnic group in the *origins* country and each ethnic group in the population of the transplanted country and employing as weights the shares of each genetic group—would produce qualitatively similar empirical results.

[31]In particular, I used Appendices 2 and 3 of CMP in order to identify the groups sampled. The resulting matching is equal to that used by Spolaore and Wacziarg (2009) except for a few entries—i.e., Egypt, Finland, Hungary, Kenya, Lybia, Malawi, Poland, Tanzania, Tunisia and Uganda—for which the histories of demography in Britannica (2008) suggest different classifications.

utive proxy from the Polity IV dataset over the period elapsing between independence and the year 2000. Missing data are ignored. The proxy is mainly related to the existence of checks and balances among different layers of the decision-making process and not to other civil liberties—e.g., the rule of law or the freedom of the press—eventually correlated with unobserved country-specific characteristics driving, for instance, also the population's tolerance for different cultural preferences (see Acemoglu et al., [2008]). Different measures of democracy (Vanhanen, 2003; Marshall and Jaggers, 2008) deliver essentially similar results. *Conditional independence?*—As made clear by a recent literature on endogenous linguistic and ethnic group formation (see Ahlerup and Olsson, [2008]), neither *Av_Elf* nor *Constraint_Executive* are immune from several endogeneity problems. This line of research formalizes the intuitions proposed by two major theories of social evolution: the primordial and the constructive view. While the former contends that ethnicity was primarily aimed at differentiating the members of the extended family from "the others" in order to facilitate the provision of public good (Ahlerup and Olsson, 2008), the latter has proposed two more recent factors: 1. the rise of the stratified society—i.e., the state and the nation with its formal legal order—deprived the extended kinships of their *raison d'être*, pushing for a more homogeneous citizenship; 2. European colonizers tried to "divide-and-rule" the new colonies in order to increase the chance of successful exploitation of the available natural resources (Ahlerup and Olsson, 2008). This exploitation was pursued to different degrees depending on the adaptability of the colonizers to the climate and to pathogen loads (see Acemoglu, Johnson, and Robinson [2001]), which, in turn, affect the species richness as stressed by a large legacy of biology and ecology research (Ahlerup and Olsson, 2008).

Given that a fixed effect procedure is not practicable lacking time variation in the dependent variable, it is not difficult to think of unobserved social and geographical factors fostering at the same time the extent of unobserved heterogeneity, the preferences for ethnic homogenization and the quality of the political process. Accordingly, I will first maintain conditional independence and, then, I will turn to an instrumental variables estimator.
Results under conditional independence.—The empirical approach is straightforward: I run probit models aimed at uncovering the determinants of the likelihood of a reform toward Case law in countries that received Statute law and probit models looking at the deter-

minants of the likelihood of a reform toward Statute law in countries that received Case law. As long as the initial choice of the law-making institution was taken by someone else, controlling for switching costs, we should observe that countries reformed their law-making institutions following the pattern described in prediction 1.[32] I shall control throughout for *Time_Independence*, which is the number of years between independence and 2000 and for *Income*, which is the average of the log of the real GDP per capita over the 1950-2000 period.[33] These should crudely proxy for lower switching costs. Table 2 reports sources of all the controls, and Table 3 lists the marginal effects for three different specifications: the first includes *Genetic_Distance*, *Time_Independence* and *Income*; the second considers also *Av_Elf*, and the third adds *Constraint_Executive* as well. These figures give the percentage variation in the likelihood of the outcome considered when the control rises by one percentage point, and they are strongly consistent with the model's predictions.

A one-standard-deviation rise in the normalized genetic distance—i.e., 0.28 and 0.3 in columns (5) and (6) respectively—implies a little more than a twelve percentage points increase in the likelihood of a reform from Statute to Case law and a little more than a nine percentage points decrease in the likelihood of a reform from Case to Statute law when also *Constraint_Executive* is considered. For the same specification, a one-standard-deviation rise in the ethno-linguistic fractionalization—i.e., 0.30—increases the likelihood of a reform from Statute to Case law by six percent and reduces the likelihood of a reform from Case to Statute law by a little less than 8 percent. The effect of the "between" cultural heterogeneity is definitely stronger than that of the "within" heterogeneity and only the former is statistically significant at a level nowhere lower than 10%. The evidence concerning *Constraint_Executive* is more mixed. Stricter constraints on the executive decrease the likelihood of both reforms and the attached coefficient is strongly significant exactly when unexpected, that is in column

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[32]I don't need to maintain the exogeneity of the initial assignment and, for instance, Klerman et al. (2009) claim that it was guided by the different colonizers' relative powers and goals. Yet, exactly such disparate aims make difficult to envision endogenous systematic patterns across groups. In point of fact, even if countries receiving Statute law show significantly weaker political institutions this seems driven mainly by the cultural contents of the transplanted language—see Table 2; besides, countries in the two groups do not significantly differ for the extent of cultural heterogeneity and many of its observable determinants: i.e., latitude, the maximum difference in altitude or temperature, and the risk of malaria.

[33]Given that, as section 2.2 shows, the evolution of the legal system should not be driven by shared efficiency concerns, using *Income* does not produce a reverse causation bias. Also, the means of *Time_Independence* and *Income* are not statistically different in the groups of switching and non switching countries.

(6). Yet, the apparent failure of the model in explaining the observed link between the quality of political insitutions and the evolution of law-making institutions is essentially due to the restrictive conditional independence hypothesis. Before turning to this point, it is worth to notice that a longer political autonomy and consequently lower switching costs raise the likelihood of both reforms. *Income*, instead, does not affect the probability of any reform. These last results remain similar in the remaining tables and thus they are omitted.

Relaxing conditional independence.—In order to relax conditional independence, I require first of all a set of instruments related to the endogenous controls but not to the unobserved determinants of the evolution of the legal system. The primordial theory of social evolution provides a natural instrument for *Av_Elf*. In a recent work, Ahlerup and Olsson (2008) propose a model of genetic drift where new ethnic groups endogenously and progressively emerge among peripheral populations as a response to an insufficient supply of public goods. In line with this model, they find that the duration of human settlements has a strong positive association with ethnic diversity. Accordingly, I use as an instrument for *Av_Elf* the time from the first uninterrupted settlement by the anatomically modern human—hereafter AMH—in 100,000s years developed by Ahlerup and Olsson (2008) for many countries in the world and indicated in the tables as *Orig_Time*. AMH first spread on Africa from 160,000 BP to 135,000 BP. Next, after a first diffusion attempt frustrated by a gigantic volcanic eruption at Toba in Sumatra, continued with South East Asia and Australia in 65,000 BP, Southern Europe and central Asia in 45,000 BP, North America between 22,000 BP and 10,000 BP, and finally Northern Europe after the retreat of the ice caps around 8,000 BP. Thus, it is extremely difficult to envision a systematic relation linking extra national natural disasters and geographical restriction with intra-national biological and geographical factors driving the unobserved cultural heterogeneity and/or the quality of political institutions. This should reassure also the most skeptical reader about the exogeneity of *Orig_Time*.

Turning to the quality of the political institutions, a recent literature informed by cross-cultural psychology studies (Licht, Goldschmidt, and Schwartz, 2007; Tabellini, 2008), has linked the preservation of the democratic accountability to the emphasis of the prevailing culture on autonomy. "Societies whose cultures emphasize individual uniqueness and view individual persons as moral equals are likely to develop norms that promote societal trans-

parency as a means for social coordination [...]. In contrast, societies [that] view the individual as an embedded part of hierarchically organized groups [...] accommodate exercise of power from above" (Licht, Goldschmidt, and Schwartz, 2007). As seen above, languages are a key factor constraining the transmission of culture, and Kashima and Kashima (1998, 2005) suggest that a stable role in this transmission mechanism is covered by the set of rules on pronouns. Languages that have several second person pronouns modulated according to the social distance among the speakers instill in the subject the respect for hierarchies; similarly, languages that allow dropping the first person pronoun are typical of cultural traditions that give more emphasis to the social context relative to the individual. Therefore, I use as an instrument for the long run extent of democracy the indicator *Egalitarianism* which equals 3 if the language spoken by the plurality group in the population has the two grammatical features just mentioned, 1 if just one rule is present and 0 otherwise. This time, the exclusion restriction is vindicated by the fact that in the majority of the cases, along with the law making institution, transplanted countries received also the language of the transplanter. To this extent, it is unlikely that unobserved geographical and biological determinants of the long run level of democracy and cultural heterogeneity are in common to the country that chose the law making rule and the transplanted one.[34]

Table 4 reports in the lower panel the first stage results and in the upper panel the second stage IV probit marginal effects. Column (1) and (2) confirms the evidence about *Genetic_Distance* and *Av_Elf*: again, the proxies for the extent of cultural heterogeneity enter with the correct sign but are not statistically significant in explaining the reforms toward Statute law. Even more crucially *Constrain_Executive* retain the negative sign always but is significant only when this sign is coherent with the theory, that is in column (1) where the probability of a reform toward Case law is studied. This pattern is robust to the introduction of another relevant covariate. Recent papers have proposed that more predictable climates have a negative impact on species richness (Ahlerup and Olsson, 2008) and a positive effect on the quality of the political institutions (Acemoglu, Johnson, and Robinson, 2001). Column

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[34]Dropping from the sample the countries that retained their original languages leads to pretty similar results. Also, the estimates are almost indistinguishable when I turn to a weighted version of *Egalitarianism* with weights given by the shares of the principal languages spoken. The main data sources are Kashima and Kashima (1998 and 2005) and Britannica (2008) from which I collected the relevant information for Ethiopia, Haiti, Papua New Guinea, Sierra Leone and the Solomon Islands.

(3) and (4) lists the estimates of the IV probit when also the normalized latitude is taken into consideration. Higher values of the latter are related to more predictable climate and, in turn, to a lower cultural heterogeneity. Consistent with this intuition, *Latitude* significantly decrease the likelihood of a reform from Statute to Case law. Controlling for the maximum difference in altitude and temperature or for a measure of malaria risk or for the identity of the eventual colonizers does not affect the qualitative message of empirical exercise. Turning to the quality of the instruments, they enter into the first stages in a nice separable form whereby *Orig_Time* affects mainly the within heterogeneity, and *Egalitarianism* mainly the strength of the constraints on the executive. This assures that the attenuation bias induced by the variable with the greatest measurement error does not load on to the other one (see Acemoglu and Johnson, [2005]). Also, the first stage R^2 confirms that the instruments are relevant. Finally, when I switch to a two stage least squares estimator and use a second instrument for the extent of cultural heterogeneity,[35] not only the qualitative gist of the empirical exercise remains unaffected but I cannot reject the overidentification restrictions at a level nowhere lower than 23 percent. Since the first stages in this and subsequent tables are very similar, I do not report them to save space.

5.2 *Civil Law versus Common Law: What do the Data Say?*

Next, I will attack the second set of testable predictions concerning the convergence of the whole bundle of institutions characterizing the two traditions. Djankov et al.'s (2003) analyze procedural rules governing the adjudication of simple legal disputes—i.e., the eviction of a non-paying tenant and the collection of a bounced check—for 109 countries for the year 2000 coding, among other aspects of the functioning of the legal system: whether extensive supreme review of the courts' decision was in place, whether the judgment was supposed to be on law and not on equity, whether the regulation of evidence was inquisitorial and whether the evidence was compulsorily submitted in writing. Such rules are consistently (Merryman, 1969; Zweigert and Kötz, 1998; Glendon, Gordon, and Carozza, 1999) considered as dis-

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[35]This third instrument is a measure of the volatility of soil types developed by Ahlerup and Olsson (2008) and positively related to the number of languages by Michalopoulos (2008), who argues that heterogeneous land endowments generated region specific human capital and ethnicities.

criminating among procedures typical of the hierarchical, inquisitorial and technical Civil law tradition and those of the coordinate, adversarial and substantive Common law tradition.[36] I stack one over the other the observations for the eviction of a non-paying tenant and the collection of a bounced check and I define the following four proxy for the existence of bright line rules:[37] 1. *Comprehensive_Appeal* equals one if issues of both law and fact can be reviewed in appeal and zero if only new evidence or issues of law can be reviewed, or if there is not appeal; 2 *Judgment_Law* equals one if judgment must be on law only, and zero when they may be based on equity grounds; 3. *Inquisitorial* equals one if the evidence gathering procedure can be considered inquisitorial and zero otherwise;[38] 4. *Written_Evidence* has value one if the evidence is mostly submitted to the court in written form—i.e., attachments, affidavits, or other—and zero otherwise. Using several historical sources—i.e., Acartürk et al. (2005); Campbell [1995]; Engelmann (1927); Finlason (1877); Ward and Wragg (2005)—detailing the history of the adjudication procedures governing similar commercial cases in the countries that transplanted the legal order into 98 of the 109 countries studied by Djankov et al.'s (2003), I obtain the same four binaries for the first year of independence: *Comprehensive_Appeal_Ind*, *Judgment_Law_Ind*, *Inquisitorial_Ind*, *Written_Evidence_Ind*. Next, I define the variable *Convergence* as the difference between the sum of *Comprehensive_Appeal_Ind*, *Judgment_Law_Ind*, *Inquisitorial_Ind*, *Written_Evidence_Ind* and the sum of *Comprehensive_Appeal*, *Judgment_Law*, *Inquisitorial*, *Written_Evidence*.

At this point, it is straightforward to obtain two binaries capturing respectively the evolution of the legal systems toward institutions typical of the Common law tradition in countries that received Statute law and the evolution of the legal systems toward institutions typical of the Civil law tradition in countries that received Case law. These two binaries are: *Common Law* which is equal to one whenever *Convergence* assumes a value strictly greater

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[36]The link with the degree of discretion by lower adjudicating courts can be summarized as follows. While extensive supreme review and written records assure a credible check on discretionary decisions; inquisitorial procedural requirements curbs the parties' incentive to report noisy and contrasting evidence which calls, in turn, for interpretation of the law (see Damaška, [1986]: pp. 3-6). Finally, an explicit limitation to equitable judgments is of similar use (see Merryman, [1969]: pp. 123-127).

[37]Balas et al. [2009] embrace a similar approach. Moreover, they also look at the evolution of similar institutions but interpreting it as a measure of the degree of convergence of the extents of formalism of countries with different "legal origins": consequently, there is no deep relation among my empirical exercise and their.

[38]I consider a procedure to be inquisitorial if judges can freely request or take evidence that has not been introduced by the parties, and refuse to collect or admit requested evidence (see Damaška, [1986]).

than one—i.e., in aggregate at least one institution was reformed toward the pure Common law tradition—and zero otherwise; *Civil Law* which is equal to one whenever *Convergence* assumes a value strictly lower than -1 and zero otherwise. In 18 among the 46 countries that received Statute law, *Common Law* has an observation equal to 1; in 29 among the 52 countries that received Case law, *Civil Law* has an observation equal to 1.

Results.—Table 5 lists the marginal effects relative to the probit models whose dependent variable is either *Common Law* or *Civil Law.* While the coefficients attached to *Constraint_Executive* have the expected signs, the proxies for cultural heterogeneity show often unpredicted patterns. Moreover, all the coefficients are generally insignificant at the usual level. However, again, this discouraging evidence is mainly driven by a failure in the conditional independence assumption. Indeed, columns (1) to (4) of Table 6, which gather the estimated marginal effects for the IV probit models, show that all the patterns foreseen by prediction 2 are met by the data except for the relation between *Genetic_Distance* and *Civil Law.* The latter has an unexpected sign and, therefore, deserves more attention in future works. All the coefficients are this time significant at 1% and the magnitude of the implied effects are large. For instance, a one-standard-deviation rise—i.e., 0.22 in column (1) and 0.34 in column (2)—in the long run level of democracy implies a little less than a 18 percentage fall in the likelihood of a reform from institutions typical of Civil law to those typical of Common law and a 12 percentage point increase in the likelihood of a reform in the opposite direction. The instruments continue to be strong and, when the TSLS estimator is used, I cannot reject the overidentification restrictions at a level nowhere lower than 38 percent.

At this point, it is reasonable to summarize the evidence saying that the distribution of the key institutions shaping the functioning of actual legal systems is neither fixed nor randomly given. Instead, it is the outcome of a unique historical shock and of the continuous welfare maximizing effort of the society at whole. To the latter extent, the present work constitutes the decisive critique to the "legal origins" literature. Not only the evolution of legal traditions is driven by factor affecting also those economic outcomes we want to explain (see Alesina et al. [2003]; Persson and Tabellini, [2009]), but the La Porta et al.'s (1999) classification is plagued by several inconsistencies. The law-making institution switches studied in section 5.1 are not considered and, among the countries studied in section 5.2, 54% (39%) of the

observations coded by La Porta et al. (1999) as having an English (French) law origin has a value of *Civil Law* (*Common Law*) of one.[39] In other words, these countries have reshaped the fundamental structure of their legal order in a direction showing a *de facto* interest in solving the bias versus volatility trade off with rules different from those transplanted.

6   Concluding Comments

This paper has moved some steps toward a theory of "endogenous legal systems". I have focused on a crucial aspect of the design of a legal system, namely the choice of those institutions that all together can be classified as "Civil" and "Common" law traditions. Rather than reviewing my results, I shall highlight the avenue for further research.

My results leave to the interested econometricians the key task of rewriting the "legal origins" literature. In the lights of the actual analysis, the empirical literature on comparative legal and economic systems should not only consider all the different institutions—i.e., law making and adjudication—characterizing the two traditions, but also the fact that the design of these institutional arrangements is driven by long-lasting cultural features of the society— i.e., the extent of cultural heterogeneity and the quality of the political institutions—which affect also the intermediate economic performances we are interested in. As an immediate consequence, such an exercise will help us in understanding whether, as claimed by a recent literature (Acemoglu and Johnson, 2005) and contrary to the incomplete markets intuition, contracting institutions, as driven by the prevailing legal institutions, have no first-order effect on long-run economic growth, investment, and financial development.[40]

All in all, exploring further the selection, evolution and impact on performances of legal institutions is a crucial but challenging task, which requires both a careful collection of data and a solid statistical work. Making progress on this endeavor will not only advance the research frontier in economics, but also delivers huge gains to many countries in the world.

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[39]Also three non Scandinavian countries coded as having some form of Civil law origin (three countries assigned to the English law group) were using Case (Statute) law over the whole independence period.

[40]This last exercise also requires evaluating the size of switching costs; as seen in section 2.2, if the latter was negligible, no difference among the performances of countries in the two traditions will be appreciated, provided that the proxies used take into full consideration both cultural tastes and technological efficiency.

Appendix

Socially optimal versus technologically efficient rules

For $\pi > 1$, $E\left(\hat{A}_i\right) \geq A^*$ is equivalent to $\Gamma\left(\lambda\pi\right) + \Gamma\left(\lambda/\pi\right) \geq 2\Gamma\left(\lambda\right)$ or $\lambda\left(1 + \lambda\pi\right)\left(1 + \lambda\right) + \left(\pi + \lambda\right)\left(\pi + \pi\lambda - 2 - 2\pi\lambda\right) \geq 0$, which is the case whenever $\lambda\left(\pi - 1\right)^2\left(1 - \lambda\right) \geq 0$. Therefore $E\left(\hat{A}_i\right) \geq A^*$ whenever $\lambda \leq 1$ and $E\left(\hat{A}_i\right) < A^*$ when, instead, $\lambda > 1$. $\quad\square$

Proof of lemma 1

The distribution of the judges' bliss points has expectation $(1/2)\left(\bar{A} + \underline{A}\right)$ and variance $(1/4)\left(\bar{A} - \underline{A}\right)^2$. Thus, by the properties of the AR(1), Case law converges to the ergodic distribution $N\left(E\left(\hat{A}_i\right), V\left(\hat{A}_i\right)(1 + 2K)^{-1}\right)$. Finally, $V\left(\hat{A}_i\right)$ increases with π because $(\lambda/2)\left(\bar{A} - \underline{A}\right)\left[\Gamma'\left(\lambda\pi\right) - \Gamma'\left(\lambda/\pi\right)\left(-1/\pi^2\right)\right] > 0$. $\quad\square$

Proof of lemma 2.A and 2.B

From (2) and (3) it is immediate to see that the objective function in (4) is strictly concave and the relative necessary and sufficient first order condition is

$$(1 - \mu)\left(\hat{A}_s\left(l\right) - \tilde{A}\right) + \mu\left[|l|\,\hat{A}_s\left(l\right) - \sum_{i \in l}\hat{A}_i\right] = 0 \tag{A1}$$

The unique solution to (A1) is (6) which rewrites for every possible l as

$\hat{A}_s\left(\{\phi\}\right) = \tilde{A}; \qquad\qquad \hat{A}_s\left(\{L\}\right) = (1 - \mu)\tilde{A} + \mu\bar{A};$

$\hat{A}_s\left(\{H\}\right) = (1 - \mu)\tilde{A} + \mu\underline{A}; \quad \hat{A}_s\left(\{L, H\}\right) = \left[(1 - \mu)\tilde{A} + \mu\left(\underline{A} + \bar{A}\right)\right](1 + \mu)^{-1} = \tilde{A}.$

The equilibrium willingness to pay for each of the last three coalitions are

$$W_l\left(\hat{A}_s\left(\{L\}\right), \tilde{A}\right) = \frac{1}{4}\left\{\left(\tilde{A} - \bar{A}\right)^2 - \left[\left(\tilde{A} - \bar{A}\right)(1 - \mu)\right]^2\right\} - \Psi =$$
$$= \frac{1}{4}\left(\tilde{A} - \underline{A}\right)^2\mu\left(2 - \mu\right) - \Psi = W_l\left(\hat{A}_s\left(\{H\}\right), \tilde{A}\right); \tag{A2}$$

$$W_l\left(\hat{A}_s\left(\{L, H\}\right), \tilde{A}\right) = \frac{1}{4}\left\{\left(\tilde{A} - \bar{A}\right)^2 + \left(\tilde{A} - \underline{A}\right)^2 - \left(\tilde{A} - \bar{A}\right)^2 - \left(\tilde{A} - \underline{A}\right)^2\right\} - \Psi = -\Psi.$$

Being $2\tilde{A} = \bar{A} - \underline{A}$, coalition $\{L, H\}$ will not pay the fixed cost and the Legislator will choose among $\{\phi\}$, $\{L\}$ and $\{H\}$. $U\left(\hat{A}_s\left(\{\phi\}\right), \tilde{A}\right) = -\frac{1 - \mu}{2}\left(\tilde{A} - \tilde{A}\right)^2 = 0$ and

$U\left(\hat{A}_s\left(\{L\}\right), \tilde{A}\right) = -(1 - \mu)\frac{\mu^2}{2}\left(\tilde{A} - \bar{A}\right)^2 + \frac{\mu^2}{2}\left(2 - \mu\right)\left(\tilde{A} - \bar{A}\right)^2 - 2\mu\Psi =$

$$= \frac{\mu^2}{8}\left(\bar{A} - \underline{A}\right)^2 - 2\mu\Psi = U\left(\hat{A}_s\left(\{H\}\right),\tilde{A}\right) \tag{A3}$$

Thus, the Legislator is indifferent between $\{L\}$ or $\{H\}$, and both her utility when bribed and the coalitions' bribing schedules rise with μ for $\mu \leq 1$ and with π being $\partial\left(\underline{A} - \bar{A}\right)^2 \big/ \partial\pi > 0$.

In particular, for Ψ small, it exists a π implicitly defined by $(\mu/16)(2-\mu)\left(\bar{A}(\bar{\pi}) - \underline{A}(\bar{\pi})\right)^2 = \Psi$, such that—as (A2) suggests—for $\pi \geq \bar{\pi}$ both groups become organized and for $\pi < \bar{\pi}$ they remain dormant. Also, there is a π implicitly defined by $(\mu/16)\left(\bar{A}(\bar{\bar{\pi}}) - \underline{A}(\bar{\bar{\pi}})\right)^2 = \Psi$, such that—as (A3) suggests—for $\pi \geq \bar{\bar{\pi}}$ the Legislator chooses either $\{L\}$ or $\{H\}$, and for $\pi < \bar{\bar{\pi}}$ she chooses $\tilde{A}$. For every $\mu \leq 1$, $(\mu/16)(2-\mu)\left(\bar{A}(\pi) - \underline{A}(\pi)\right)^2 \geq (\mu/16)\left(\bar{A}(\pi) - \underline{A}(\pi)\right)^2$ and consequently $\bar{\bar{\pi}} \geq \bar{\pi}$. From $t = 1$ on and for $\pi \geq \bar{\pi}$, the loss of social welfare is $(\mu^2/8)\left(\bar{A} - \underline{A}\right)^2$. No group pays a $\Psi > 1/16$ and the following comparative statics hold:

$\left(\frac{\mu}{16}\right)(2-\mu)\left[\partial\left(\bar{A}(\bar{\pi}) - \underline{A}(\bar{\pi})\right)^2\big/\partial\pi\right]d\bar{\pi} - d\Psi = 0 \to d\bar{\pi}/d\Psi > 0$;

$\left(\frac{\mu}{16}\right)(2-\mu)\left[\partial\left(\bar{A}(\bar{\pi}) - \underline{A}(\bar{\pi})\right)^2\big/\partial\pi\right]d\bar{\pi} + (1/8)(1-\mu)\left(\bar{A}(\bar{\pi}) - \underline{A}(\bar{\pi})\right)^2 d\mu = 0 \to \frac{d\bar{\pi}}{d\mu} < 0$;

$(1/8)\mu^2\left[\partial\left(\bar{A}(\bar{\bar{\pi}}) - \underline{A}(\bar{\bar{\pi}})\right)^2\big/\partial\pi\right]d\bar{\bar{\pi}} - 2\mu d\Psi = 0 \to d\bar{\bar{\pi}}/d\Psi > 0$;

$(1/8)\mu^2\left[\partial\left(\bar{A}(\bar{\bar{\pi}}) - \underline{A}(\bar{\bar{\pi}})\right)^2\big/\partial\pi\right]d\bar{\bar{\pi}} + (1/4)\mu\left(\bar{A}(\bar{\bar{\pi}}) - \underline{A}(\bar{\bar{\pi}})\right)^2 d\mu = 0 \to d\bar{\bar{\pi}}/d\mu < 0$. $\square$

Proof of lemma 3

The possible coalitions are now $\{\phi\}$, $\{E\}$, $\{L\}$, $\{H\}$, $\{E, L\}$, $\{E, H\}$, $\{L, H\}$, and $\{E, L, H\}$ who will never pay a $\Psi > 0$. The Legislator obtains the following utility levels:

$U\left(\hat{A}_s\left(\{\phi\}\right),\tilde{A}\right) = 0$; $\qquad U\left(\hat{A}_s\left(\{E\}\right),\tilde{A}\right) = (\mu^2/2)\left[(\bar{A} + \underline{A} - 2A^*)/3\right]^2 - 3\mu\Psi$;

$U\left(\hat{A}_s\left(\{L\}\right),\tilde{A}\right) = (\mu^2/2)\left[(A^* + \underline{A} - 2\bar{A})/3\right]^2 - 3\mu\Psi$;

$U\left(\hat{A}_s\left(\{H\}\right),\tilde{A}\right) = (\mu^2/2)\left[(\bar{A} + A^* - 2\underline{A})/3\right]^2 - 3\mu\Psi$;

$U\left(\hat{A}_s\left(\{E, L\}\right),\tilde{A}\right) = (1/2)\left[(2\mu^3 + \mu^2)/(1+\mu)^2\right]\left[(2\underline{A} - A^* - \bar{A})/3\right]^2 - 3\mu\Psi$;

$U\left(\hat{A}_s\left(\{E, H\}\right),\tilde{A}\right) = (1/2)\left[(2\mu^3 + \mu^2)/(1+\mu)^2\right]\left[(2\bar{A} - A^* - \underline{A})/3\right]^2 - 3\mu\Psi$;

$U\left(\hat{A}_s\left(\{L, H\}\right),\tilde{A}\right) = (1/2)\left[(2\mu^3 + \mu^2)/(1+\mu)^2\right]\left[(2A^* - \bar{A} - \underline{A})/3\right]^2 - 3\mu\Psi$.

For every π, $\max\left\{\left|\tilde{A} - \bar{A}\right|, \left|\tilde{A} - \underline{A}\right|\right\} > \left|\tilde{A} - A^*\right|$ which implies that one between coalitions $\{L\}$ and $\{H\}$ will always be preferred to $\{E\}$. Thus, the Legislator chooses one among $\{L\}$, $\{H\}$, $\{L, H\}$, $\{L, E\}$ and $\{E, H\}$. In particular, she prefers $\{L\}$ to $\{H\}$ if $\left|A^* + \underline{A} - 2\bar{A}\right| = 2\bar{A} - A^* - \underline{A} > \bar{A} + A^* - 2\underline{A}$ or $\lambda \leq 1$ and $\{H\}$ to $\{L\}$ if $\lambda > 1$. For $\lambda \leq 1$, $\{E, H\}$ is preferred to $\{L, H\}$—being $2\bar{A} - A^* - \underline{A} > \bar{A} + \underline{A} - 2A^*$—and to $\{E, L\}$—

because $2\bar{A} - A^* - \underline{A} \geq \bar{A} + A^* - 2\underline{A}$. Yet, the Legislator weakly prefers $\{L\}$ to $\{E, H\}$ for every $\mu \geq 0$ being $2\mu + 1 \leq (1 + \mu)^2$. For $\lambda > 1$, $\{E, L\}$ is preferred to $\{E, H\}$—because $\bar{A} + A^* - 2\underline{A} > 2\bar{A} - A^* - \underline{A}$—which, in turn, is preferred to $\{L, H\}$—because $2\bar{A} - A^* - \underline{A} > 2A^* - \bar{A} - \underline{A}$. Yet, the Legislator prefers $\{H\}$ being $2\mu + 1 \leq (1 + \mu)^2$. The Legislator's utility in favoring $\{L\}$ or $\{H\}$ and the two coalitions' bribing schedules increase with μ and with π—because $\partial \left(A^* + \underline{A} - 2\bar{A} \right)^2 \big/ \partial \pi = 2 \left(A^* + \underline{A} - 2\bar{A} \right) \left[\Gamma' \left(\lambda / \pi \right) \left(-1/\pi^2 \right) - 2\Gamma' \left(\lambda \pi \right) \pi \right] = \partial \left(\bar{A} + A^* - 2\underline{A} \right)^2 \big/ \partial \pi > 0$. For Ψ sufficiently small and $\lambda \leq 1$, there exists a $\tilde{\pi}_L$ implicitly defined by $(1/54)\,\mu\,(2 - \mu) \left(A^* + \underline{A}\,(\tilde{\pi}_L) - 2\bar{A}\,(\tilde{\pi}_L) \right)^2 = \Psi$ such that for $\pi \geq \tilde{\pi}_L$, $\{L\}$ pays the fixed fee and for $\pi < \tilde{\pi}_L$ it remains dormant; by the same token, for $\lambda > 1$, it exists a $\tilde{\pi}_H$ implicitly defined by $(1/54)\,\mu\,(2 - \mu) \left(\bar{A}\,(\tilde{\pi}_H) + A^* - 2\underline{A}\,(\tilde{\pi}_H) \right)^2 = \Psi$ such that for $\pi \geq \tilde{\pi}_H$, $\{H\}$ pays the fixed fee and for $\pi < \tilde{\pi}_H$ it remains dormant. Also, for $\lambda \leq 1$, there is a $\tilde{\tilde{\pi}}_L$ implicitly defined by $(1/54)\,\mu^2 \left(A^* + \underline{A}\,(\tilde{\tilde{\pi}}_L) - 2\bar{A}\,(\tilde{\tilde{\pi}}_L) \right)^2 = \Psi$, such that for $\pi \geq \tilde{\tilde{\pi}}_L$ the Legislator chooses $\{L\}$ and, for $\pi < \tilde{\tilde{\pi}}_L$, $\tilde{A}$ prevails; for $\lambda > 1$, there is a $\tilde{\tilde{\pi}}_H$ implicitly defined by $(1/54)\,\mu^2 \left(\bar{A}\,(\tilde{\tilde{\pi}}_H) + A^* - 2\underline{A}\,(\tilde{\tilde{\pi}}_H) \right)^2 = \Psi$, such that for $\pi \geq \tilde{\tilde{\pi}}_H$ the Legislator chooses $\{H\}$ and, for $\pi < \tilde{\tilde{\pi}}_H$, $\tilde{A}$ prevails. Again, $\forall \tilde{l} = L, H$, $\tilde{\tilde{\pi}}_{\tilde{l}} \geq \tilde{\pi}_{\tilde{l}}$. The loss of social welfare is $(\mu^2/18) \left(A^* + \underline{A} - 2\bar{A} \right)^2$ for $\lambda \leq 1$ and $\pi \geq \tilde{\tilde{\pi}}_L$ and it is $(\mu^2/18) \left(\bar{A} + A^* - 2\underline{A} \right)^2$ for $\lambda > 1$ and $\pi \geq \tilde{\tilde{\pi}}_H$. No group pays a $\Psi > 1/27$. The comparative statics are obtained as above.$\square$

Proof of proposition 2

For $\lambda > 1$ the expected losses of welfare under the two institutions are equal for $0 \leq \tilde{\mu}_H^2 = $

$$[2\,(1 + 2K)]^{-1} \left\{ \left[6\,(\bar{A})^2 + 6\,(A^*)^2 + 6\,(\underline{A})^2 - 2\,(\bar{A} + A^* + \underline{A})^2 \right] (\bar{A} + A^* - 2\underline{A})^{-2} \right\} \quad \text{(A4)}$$

The difference between the numerator and the denominator of the ratio in the brackets is
$6\,(\bar{A})^2 + 6\,(A^*)^2 + 6\,(\underline{A})^2 - 2\,(\bar{A} + A^* + \underline{A})^2 - \left[(\bar{A} + A^* + \underline{A}) - 3\underline{A} \right]^2 = $
$6\,(\bar{A})^2 + 6\,(A^*)^2 - 3\left[(\bar{A} + A^* + \underline{A})^2 - 2\underline{A}\,(\bar{A} + A^* + \underline{A}) + (\underline{A})^2 \right] = 3\,(\bar{A} - A^*)^2 > 0,$
so that (A4) can be written as $\tilde{\mu}_H^2 = (1/2)\,(1 + 2K)^{-1} \left\{ 1 + 3\,(\bar{A} - A^*)^2 \,(\bar{A} + A^* - 2\underline{A})^{-2} \right\}$.
As a result, the right hand side of (A4) is decreasing with π because
$\frac{\partial}{\partial \pi} \left(\frac{\bar{A} - A^*}{\bar{A} + A^* - 2\underline{A}} \right)^2 < 0 \leftrightarrow \frac{\partial \bar{A}}{\partial \pi}\,(\bar{A} + A^* - 2\underline{A}) - \left(\frac{\partial \bar{A}}{\partial \pi} - 2\frac{\partial \underline{A}}{\partial \pi} \right)(\bar{A} - A^*) < 0 \leftrightarrow$
$\leftrightarrow \frac{2\lambda}{(1+\pi\lambda)^2} \left(\frac{\lambda}{1+\lambda} - \frac{\lambda}{\pi+\lambda} \right) < \frac{2\lambda}{(\pi+\lambda)^2} \left(\frac{\lambda\pi}{1+\lambda\pi} - \frac{\lambda}{1+\lambda} \right) \leftrightarrow \pi + \lambda < 1 + \lambda\pi \leftrightarrow \lambda > 1.$

A similar analysis applies to the $\lambda \leq 1$ case and it is, therefore, omitted. In this case, the expected loss of welfare is equal under Statute law and Case law for

$$\tilde{\mu}_L^2 = (1/2)\,(1+2K)^{-1}\left[1 + 3\left(A^* - \underline{A}\right)^2\left(A^* + \underline{A} - 2\bar{A}\right)^{-2}\right] \geq 0. \qquad \square$$

Accounting for tastes versus efficiency

Again coalition $\{L, H\}$ is not willing to pay the collective action cost and the Legislator is indifferent between $\{L\}$ and $\{H\}$. Both her utility in favoring one of these two coalitions— $\left(\mu^2/8\right)(1-T)^2\left(\bar{A} - \underline{A}\right)^2 - 2\mu\Psi$—and the coalitions' bribing schedules rise with μ and π. For Ψ sufficiently small, it exists a $\bar{\pi}^E$ defined by $(1/16)\,\mu\,(2-\mu)\,(1-T)^2\left(\bar{A}\left(\bar{\pi}^E\right) - \underline{A}\left(\bar{\pi}^E\right)\right)^2 = \Psi$, such that for $\pi \geq \bar{\pi}^E$ both groups become organized and for $\pi < \bar{\pi}^E$ they remain dormant, and there is a $\bar{\bar{\pi}}^E$ implicitly defined by $(1/16)\,\mu\,(1-T)^2\left(\bar{A}\left(\bar{\bar{\pi}}^E\right) - \underline{A}\left(\bar{\bar{\pi}}^E\right)\right)^2 = \Psi$, such that for $\pi \geq \bar{\bar{\pi}}^E$ the Legislator chooses either $\{L\}$ or $\{H\}$ and, for $\pi < \bar{\bar{\pi}}^E$, $\tilde{A}^E$ is chosen. Again $\bar{\bar{\pi}}^E > \bar{\pi}^E$. For $\pi \geq \bar{\bar{\pi}}^E$, the loss of social welfare is $\left(\mu^2/8\right)(1-T)^2\left(\bar{A} - \underline{A}\right)^2$. No group pays a $\Psi > (1/16)\,(1-T)^2$; besides, the usual comparative statics apply. $\qquad \square$

Endogenous collusion proofness

In $t \geq 1$, under Case law the loss of welfare for each of the two groups is $\frac{1}{2}\left(\frac{\bar{A}+\underline{A}}{2} - \underline{A}\right)^2 +$ $\frac{1}{2}\frac{\left(\bar{A}-\underline{A}\right)^2}{4}\frac{1}{1+2K} = \frac{\left(\bar{A}-\underline{A}\right)^2}{8}\left(1 + \frac{1}{1+2K}\right)$. Under Statute law, if L is chosen, the losses of welfare for group H and L are respectively $(1/8)\,(1+\mu)^2\left(\bar{A} - \underline{A}\right)^2$ and $(1/8)\,(1-\mu)^2\left(\bar{A} - \underline{A}\right)^2$. When $\mu^2 < (1+2K)^{-1}$, Statute law is optimal and coalition H is unable to offer for introducing Case law a bribe bigger than the one that coalition L is willing to pay in order to retain Statute law being $\Lambda_H\left(\hat{A}_s\right) - E\left(\Lambda_L\left(\hat{A}_c\right)\right) < E\left(\Lambda_L\left(\hat{A}_c\right)\right) - \Lambda_L\left(\hat{A}_s\right)$ because $0 < \left[1 + \mu^2 + 2\mu - 1 - \frac{1}{1+2K}\right]\frac{\left(\bar{A}-\underline{A}\right)^2}{8} < \left[1 + \frac{1}{1+2K} - 1 - \mu^2 + 2\mu\right]\frac{\left(\bar{A}-\underline{A}\right)^2}{8}$ or $\mu^2 < (1+2K)^{-1}$. If instead $\mu^2 > (1+2K)^{-1}$, Case law is optimal and, bribing the Table, the two groups obtain an expected loss of $(1/2)\,\Lambda_H\left(\hat{A}_s\right) + (1/2)\,\Lambda_L\left(\hat{A}_s\right) = (1/8)\,(1+\mu^2)\left(\bar{A} - \underline{A}\right)^2$ which is bigger than the expected loss under Case law—$(1/8)\left(\bar{A} - \underline{A}\right)^2\left[1 + (1+2K)^{-1}\right]$, exactly because $\mu^2 > (1+2K)^{-1}$. A similar analysis holds true if coalition H is chosen. $\qquad \square$

Proof of lemma 4 and proposition 3

A type $\{H\}$ judge faced with a type $\{L\}$'s precedent distinguishes to the first best if $-K^D \geq -(1/2)\left(\bar{A} - \underline{A}\right)^2$. By the same token, a type $\{L\}$ judge faced with a type $\{H\}$'s

precedent distinguishes to the first best if $2K^D \leq \left(\bar{A} - \underline{A}\right)^2$. Being $\partial\left(\underline{A} - \bar{A}\right)^2 \Big/ \partial\pi > 0$ and provided that $K^D \leq 1/2$, there exists a π^D rising with K^D such that every judge finds it worthy to introduce the second dimension for $\pi \geq \pi^D$. The loss of social welfare under Case law for $\pi < \pi^D$ is $(1/8)\left(\bar{A} - \underline{A}\right)^2$ which is weakly greater than the one under Statute law which is $\mu^2\,(1/8)\left(\bar{A} - \underline{A}\right)^2$. Thus, for $\pi < \pi^D$, Statute law is weakly better than Case law. The opposite is true for $\pi \geq \pi^D$ when Case law achieves the first best. $\square$

Proof of proposition 4

Lower courts of type H and L will make use of discretion respectively when:

$$\left(\hat{A}^J_{j,t} - \underline{A}\right)^2 \geq \left(\hat{A}^J_{j,t} - \alpha - \underline{A}\right)^2 + 2\theta \leftrightarrow \hat{A}^J_{j,t} \geq (2\alpha)^{-1}\left(2\theta + \alpha^2\right) + \underline{A}; \qquad (A5)$$

$$\left(\hat{A}^J_{j,t} - \bar{A}\right)^2 \geq \left(\hat{A}^J_{j,t} + \alpha - \bar{A}\right)^2 + 2\theta \leftrightarrow \hat{A}^J_{j,t} \leq -(2\alpha)^{-1}\left(2\theta + \alpha^2\right) + \bar{A}. \qquad (A6)$$

From (A5) and (A6) it follows that a type H (L) lower court uses discretion if and only if $\hat{A}^J_{j,t} > E\left(\hat{A}_i\right)$ $\left(\hat{A}^J_{j,t} < E\left(\hat{A}_i\right)\right)$ and $\theta > \bar{\theta} \equiv (\alpha/2)\left[\left(\bar{A}\left(\pi\right) - \underline{A}\left(\pi\right)\right) - \alpha\right]$; $\bar{\theta} > 0$ being $\alpha < (1/2)\left(\bar{A} - \underline{A}\right)$. A type i appellate judge's objective function is: $-2K\left(A^J_{c,t}\left(i\right) - \hat{A}^J_{c,t-1}\right)^2 +$
$-\Pr\left[A^J_{c,t}\left(i\right) < \tilde{A}\right]\left\{\left[A^J_{c,t}\left(i\right) - A^J_{c,t}\left(i\right) - \alpha/2\right]^2 + \left[A^J_{c,t}\left(i\right) + \alpha - A^J_{c,t}\left(i\right) - \alpha/2\right]^2\right\} +$
$-\Pr\left[A^J_{c,t}\left(i\right) > \tilde{A}\right]\left\{\left[A^J_{c,t}\left(i\right) - A^J_{c,t}\left(i\right) + \alpha/2\right]^2 + \left[A^J_{c,t}\left(i\right) - \alpha - A^J_{c,t}\left(i\right) + \alpha/2\right]^2\right\} +$
$-\Pr\left[A^J_{c,t}\left(i\right) < \tilde{A}\right]\left[A^J_{c,t}\left(i\right) + \alpha/2 - \hat{A}_i\right]^2 - \Pr\left[A^J_{c,t}\left(i\right) > \tilde{A}\right]\left[A^J_{c,t}\left(i\right) - \alpha/2 - \hat{A}_i\right]^2.$
Consider first a type L appellate judge, she will choose an $A^J_{c,t}\left(L\right) > \tilde{A}$ whenever the first order condition is met and the corner $\tilde{A}$ is not a solution or

$$\hat{A}^J_{c,t}\left(L\right) - \alpha/2 - \bar{A} + K\left(\hat{A}^J_{c,t}\left(L\right) - \hat{A}^J_{c,t-1}\right) = 0; \qquad (A7)$$

$$\tilde{A} + \alpha/2 - \bar{A} + K\left(\tilde{A} - \hat{A}^J_{c,t-1}\right) < 0 \leftrightarrow \alpha < \left(\bar{A} - \underline{A}\right) - K\left(\bar{A} + \underline{A} - 2\hat{A}^J_{c,t-1}\right). \qquad (A8)$$

Symmetrically a type H judge will fix an $A^F_{c,t}\left(H\right) < \tilde{A}$ whenever

$$\hat{A}^J_{c,t}\left(H\right) + \alpha/2 - \underline{A} + K\left(\hat{A}^J_{c,t}\left(H\right) - \hat{A}^J_{c,t-1}\right) = 0; \qquad (A9)$$

$$\tilde{A} - \alpha/2 - \underline{A} + K\left(\tilde{A} - \hat{A}^J_{c,t-1}\right) > 0 \leftrightarrow \alpha < \left(\bar{A} - \underline{A}\right) - K\left(\bar{A} + \underline{A} - 2\hat{A}^J_{c,t-1}\right). \qquad (A10)$$

Conditions (A7) and (A9) imply that Case law follows an AR(1) process converging to the ergodic distribution with variance $(1 + 2K)^{-1} \left[(1/4) \left(\bar{A} - \underline{A} \right)^2 + \alpha^2/4 + (\alpha/2) \left(\bar{A} - \underline{A} \right) \right]$ and mean $E \left(\hat{A}_i \right)$. If Case law is mature, conditions (A8) and (A10) are always met being $\alpha < \bar{\alpha} < \left(\bar{A} - \underline{A} \right)$, and $\tilde{A}$ is not a solution being $\tilde{A} - \bar{A} < 0$ $(\tilde{A} - \underline{A} > 0)$ when $i = L$ $(i = H)$. As a consequence, $A^J_{c,t}(L) > \tilde{A}$ and $A^J_{c,t}(H) < \tilde{A}$. If $\tilde{\tilde{\alpha}}$ is the random variable equal to 0 when appellate and lower courts are of the same type and to $-\alpha$ (α) if $i = L$ $(i = H)$ and the adjudicating court is of type H (L). Thus, the variance of the *de facto* rule equals

$$V \left(\hat{A}^J_{c,t}(L) \right) + V \left(\tilde{\tilde{\alpha}} \right) + 2Cov \left(\hat{A}^J_{c,t}(L) + \tilde{\tilde{\alpha}} \right) = V \left(\hat{A}^J_{c,t}(L) \right) + E \left(\tilde{\tilde{\alpha}}^2 \right) + 2E \left(\hat{A}^J_{c,t}(L) \tilde{\tilde{\alpha}} \right) =$$

$$= \frac{1}{1+2K} \left[\frac{\left(\bar{A} - \underline{A} \right)^2}{4} + \frac{\alpha^2}{4} + \frac{\alpha \left(\bar{A} - \underline{A} \right)}{2} \right] + \frac{\alpha^2}{2} - \frac{\alpha \left(\bar{A} - \underline{A} \right)}{2(1+K)} - \frac{\alpha^2}{2(1+K)} =$$

$$= \frac{V \left(\hat{A}_i \right)}{1 + 2K} + \frac{\alpha^2 \left(1 + 3K + 4K^2 \right)}{4 \left(1 + K \right) \left(1 + 2K \right)} - \frac{\alpha \left(\bar{A} - \underline{A} \right) K}{2 \left(1 + K \right) \left(1 + 2K \right)} < \frac{V \left(\hat{A}_i \right)}{1 + 2K}. \tag{A11}$$

The last inequality in (A11) is true because $\alpha < \bar{\alpha} \le 2K \left(1 + 3K + 4K^2 \right)^{-1} \left(\bar{A} - \underline{A} \right)$. The pure Common law tradition is introduced if $\Theta < \bar{\Theta} \equiv (1/2) \left[V \left(\hat{A}_i \right) [1 + 2K] - V \left(\hat{A}^F_{c,t} \right) \right]$ with $\bar{\Theta} > 0$. Also, if Statute outperforms Case law $\mu < (1 + 2K)^{-1/2}$ because it has to be true that $\mu^2 V \left(\hat{A}_i \right) < \min \left\{ \left[V \left(\hat{A}_i \right) + \alpha^2/4 + \left(\bar{A} - \underline{A} \right) (\alpha/2) \right] [(1 + 2K)]^{-1}, V \left(\hat{A}_i \right) (1 + 2K)^{-1} \right\}$. Thus, $\alpha < \left[1 - (1 + 2K)^{-1/2} \right] \left(\bar{A} - \underline{A} \right) < (1 - \mu) \left(\bar{A} - \underline{A} \right)$ and the maximum (minimum) value of the *de facto* rule when coalition L (H) wins is always lower (bigger) than $\bar{A}$ $(\underline{A})$ being $\hat{A}^F_s(L) = (1 - \mu) \tilde{A} + \mu \bar{A} + \alpha < \bar{A} \le 1$ $(\hat{A}^F_s(H) = (1 - \mu) \tilde{A} + \mu \underline{A} - \alpha > \underline{A} \ge 0)$. $\square$

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Tables

Table 1: Sample

Albania; Algeria; Anguilla*; Antigua; Argentina*; Australia*; Bahrain*; Bangladesh*; Barbados; Belgium*; Belize*; Benin; Bermuda*; Bolivia*; Botswana*; Brazil*; British Virgin Island*; Brunei; Bulgaria*; Burkina Faso; Burundi; Cameroon; Canada*; Cayman*; Central African Republic; Chad; Chile*; China*; Colombia*; Comoro; Congo; Costa Rica*; Cote D'Ivoire*; Croatia*; Cuba; Cyprus*; Czech Republic*; Dominica; Dominican Republic*; Ecuador*; Egypt*; El Salvador*; Equatorial Guinea; Estonia*; Ethiopia; Falkland Island; Fiji; Finland*; Gabon; Gambia; Georgia*; Ghana*; Gibraltar*; Greece*; Grenada*; Guatemala*; Guinea; Guyana; Haiti; Honduras*; Hong Kong*; Hungary*; Iceland*; India*; Indonesia*; Iran; Iraq; Ireland*; Israel*; Italy*; Jamaica*; Japan*; Jordan*; Kazakhstan*; Kenya*; Khmer Republic; Korea Republic*; Kuwait*; Laos; Latvia*; Lebanon*; Lesotho; Liberia; Libya; Liechtenstein; Lithuania*; Luxembourg*; Malagasy Republic/Madagascar; Malawi*; Malaysia*; Mali; Malta*; Mauritania; Mauritius; Mexico*; Monaco*; Montserrat; Morocco*; Myanmar; Namibia*; Nauru; Nepal; Netherlands*; New Zealand*; Nicaragua; Niger; Nigeria*; Norway*; Pakistan*; Panama*; Papua New Guinea; Paraguay*; Peru*; Philippines*; Poland*; Portugal*; Quatar; Romania*; Rwanda; St. Kitts and Navis; St. Lucia; St. Vincent*; Senegal*; Seychelles; Sierra Leone; Singapore*; Slovenia*; Solomon Island; Somalia; South Africa*; Spain*; Sri Lanka*; Sudan; Swaziland*; Syria; Taiwan*; Tanzania*; Thailand*; Togo; Tonga; Trinidad and Tobago*; Tunisia*; Turkey*; Turks and Caicos*; Uganda*; Ukraine*; United Arab Emirates*; USA*; Uruguay*; Vatican; Venezuela*; Vietnam*; Western Samoa; Zaire; Zambia*; Zimbabwe*.

Note: 1.   Only those countries followed by an asterisk are in the sample used in table 5 and 6.

Table 2: Variables – Description and Summary Statistics

Panel A: Variables Definitions

Genetic_Distance = Normalized coancestry coefficient between the plurality ethnic group in the country which chose the law-making institution and the one in the transplanted country. The details of its construction are given in section 5. Sources: Alesina et al. (2003), Britannica (2008) and Cavalli-Sforza, Menozzi, and Piazza (1994).

Av_Elf = Ethno-linguistic fractionalization index for the 1960. Source: Persson and Tabellini (2003).

Constraint_Executive = Normalized average of the constraints on the executive index—Polity IV dataset—over the years between independence and 2000. Source: Marshall and Jaggers (2008).

Time_Independence = Number of years from independence to 2000, ranging from 0 to 250; 250 is used for all non-colonized countries. Sources: Britannica (2008) and CIA (2008).

Income = Log of the mean of the real GDP per capita over the 1950-2000 period—calculated through the Chain Method—in 2000 dollars. Source: Heston, Summers, and Aten (2006).

Latitude = Absolute value of the latitude normalized in order to range between 0 and 1. Source: CIA (2008).

Orig_Time = Duration of human settlement in 100,000s years. Source: Ahlerup and Olsson (2008).

Egalitarianism = Index increasing in the country's cultural emphasis on egalitarianism. The details of its construction are given in section 5. Sources: Alesina et al. (2003), Britannica (2008), Kashima and Kashima (1998, 2005).

Panel B: Summary Statistics

Transplantation	Genetic	Av_Elf	Constraint	Time	Income	Latitude	Orig_Time	Egalit.
Statute law	0.513	0.360	0.323	111.635	7.631	0.231	55,182.69	2.923
(52 countries)	(0.275)	(0.315)	(0.226)	(74.098)	(0.881)	(0.166)	(53,133.85)	(0.269)
Case law	0.490	0.431	0.612	77.25	7.719	0.268	72,072.73	1.818
(44 countries)	(0.295)	(0.308)	(0.321)	(70.196)	(1.103)	(0.191)	(52,369.53)	(0.896)
T-test: p-value	0.70	0.27	0.00	0.02	0.67	0.31	0.12	0.00
Civil law	0.427	0.238	0.415	143.849	7.998	0.278	29,454.55	2.879
(33 countries)	(0.252)	(0.249)	(0.225)	(67.203)	(0.669)	(0.176)	(31,237.15)	(0.329)
Common law	0.430	0.375	0.611	86.00	7.966	0.309	65,241.18	1.971
(34 countries)	(0.300)	(0.305)	(0.338)	(74.733)	(1.064)	(0.193)	(48,672.06)	(0.897)

Notes: 1.   The sample considered to calculate the statistics of the first (last) three rows is the one used in table 4 (6);
2.   Standard deviations in parentheses;
3.   The null hypothesis of the t-test is that the mean of the variable is equal in the two groups.

Table 3: Statute Law versus Case Law - Probit

	(1)	(2)	(3)	(4)	(5)	(6)
	The dependent variable is the likelihood of a reform toward:					
	Case law	*Statute law*	*Case law*	*Statute law*	*Case law*	*Statute law*
Genetic_Distance	0.347 (0.111)***	- 0.475 (0.178)***	0.389 (0.160)**	- 0.240 (0.144)*	0.427 (0.179)**	- 0.300 (0.168)*
Av_Elf			0.176 (0.141)	- 0.466 (0.171)***	0.207 (0.154)	- 0.269 (0.200)
Constraint_Executive					- 0.063 (0.160)	- 0.537 (0.198)***
Time_Independence	0.0008 (0.0004)**	0.001 (0.0006)**	0.001 (0.0006)**	0.001 (0.0006)*	0.001 (0.0006)**	0.0005 (0.0006)
Income			0.029 (0.035)	- 0.118 (0.049)**	0.047 (0.045)	0.005 (0.079)
Estimation	Probit					
Pseudo R^2	0.16	0.16	0.16	0.26	0.16	0.38
Log Pseudo-Likelihood	- 25.222	- 32.746	- 24.068	- 22.611	- 23.368	- 16.483
Number of obs.	80	76	69	63	64	51

Notes: 1.   Robust standard errors—z distribution—in parentheses;
        2.   *** denotes significant at the 1% confidence level; **, 5%; *, 10%.

Table 4: Statute Law versus Case Law - IV Probit

	(1)	(2)	(3)	(4)
	The dependent variable is the likelihood of a reform toward:			
	Case law	*Statute law*	*Case law*	*Statute law*
Genetic_Distance	0.574 (0.178)***	- 0.052 (2.246)	0.563 (0.014)***	- 0.012 (0.682)
Av_Elf	0.182 (0.056)***	- 0.046 (1.996)	0.170 (0.020)***	- 0.014 (0.690)
Constraint_Executive	- 0.051 (0.016)***	- 0.078 (3.359)	- 0.044 (0.001)***	- 0.018 (1.104)
Latitude			- 0.028 (0.001)***	- 0.008 (0.383)
First Stage for *Av_Elf*				
Orig_Time	$2.22e^{-06}$ $(1.24e^{-06})$*	$2.01e^{-06}$ $(1.08e^{-06})$*	$1.93e^{-06}$ $(1.00e^{-06})$*	$2.09e^{-06}$ $(1.04e^{-06})$*
Egalitarianism	- 0.155 (0.111)	- 0.042 (0.033)	- 0.228 (0.117)*	- 0.058 (0.031)*
R^2 in the First Stage	0.61	0.62	0.65	0.65
F_Test on Excluded Instr.	0.01	0.22	0.01	0.10
First Stage for *Constraint_Executive*				
Orig_Time	$- 1.24e^{-06}$ $(6.36e^{-07})$*	$- 1.82e^{-06}$ $(1.30e^{-06})$	$- 1.27e^{-06}$ $(6.59e^{-07})$*	$- 1.83e^{-06}$ $(1.30e^{-06})$*
Egalitarianism	- 0.366 (0.133)***	- 0.149 (0.043)***	- 0.373 (0.134)***	- 0.147 (0.044)***
R^2 in the First Stage	0.49	0.54	0.49	0.54
F_Test on Excluded Instr.	0.01	0.00	0.01	0.00
Other Controls	*Time_Independence, Income*			
Estimation	IV Probit			
Number of Observations	52	44	52	44

Notes: 1.   Robust standard errors in parentheses;
        2.   *** denotes significant at the 1% confidence level; **, 5%; *, 10%;
        3.   Control variables used in the second stage are also included in the first stage but not reported to save space.

Table 5: Civil Law versus Common Law - Probit

	(1)	(2)	(3)	(4)	(5)	(6)
	The dependent variable is the likelihood of a reform toward:					
	Common law	*Civil law*	*Common law*	*Civil law*	*Common law*	*Civil law*
Genetic_Distance	0.270	0.253	0.047	0.441	- 0.128	0.467
	(0.238)	(0.243)	(0.395)	(0.292)	(0.475)	(0.347)
Av_Elf			- 0.187	- 0.562	0.100	- 0.683
			(0.365)	(0.341)*	(0.385)	(0.452)
Constraint_Executive					- 0.617	0.430
					(0.430)	(0.352)
Estimation	Probit					
Pseudo R^2	0.03	0.01	0.03	0.07	0.07	0.08
Log Pseudo-Likelihood	- 57.045	- 71.028	- 50.723	- 56.204	- 46.731	- 48.071
Number of obs.	92	104	80	88	76	76

Notes:
1. Robust standard errors—z distribution—in parentheses;
2. *** denotes significant at the 1% confidence level; **, 5%; *, 10%.
3. *Time_Independence* is always included as a further control; I also consider *Income* as a control in columns (3) to (6).

Table 6: Civil Law versus Common Law - IV Probit

	(1)	(2)	(3)	(4)
	The dependent variable is the likelihood of a reform toward:			
	Common law	*Civil law*	*Common law*	*Civil law*
Genetic_Distance	0.455	0.761	0.772	0.803
	(0.840)	(0.003)***	(0.093)***	(0.312)***
Av_Elf	0.203	- 0.772	0.425	- 0.703
	(0.028)***	(0.003)***	(0.051)***	(0.273)***
Constraint_Executive	- 0.699	0.405	- 0.915	0.528
	(0.095)***	(0.001)***	(0.110)***	(0.205)***
Latitude			1.764	0.226
			(0.213)***	(0.103)***
First Stage for *Av_Elf*				
Orig_Time	2.70e^{-06}	3.77e^{-06}	2.69e^{-06}	3.76e^{-06}
	(1.23e^{-06})**	(1.27e^{-06})***	(1.16e^{-06})**	(1.29e^{-06})***
Egalitarianism	- 0.149	- 0.034	- 0.163	- 0.036
	(0.116)	(0.035)	(0.110)	(0.038)
R^2 in the First Stage	0.54	0.76	0.56	0.76
F_Test on Excluded Instr.	0.06	0.02	0.03	0.02
First Stage for *Constraint_Executive*				
Orig_Time	- 1.84e^{-06}	- 2.59e^{-06}	- 1.85e^{-06}	- 2.55e^{-06}
	(1.14e^{-06})	(1.52e^{-06})*	(1.18e^{-06})	(1.51e^{-06})*
Egalitarianism	- 0.265	- 0.147	- 0.279	- 0.142
	(0.124)**	(0.049)***	(0.118)**	(0.050)***
R^2 in the First Stage	0.48	0.59	0.50	0.59
F_Test on Excluded Instr.	0.01	0.00	0.00	0.00
Other Controls	*Time_Independence, Income*			
Estimation	IV Probit			
Number of Observations	66	68	66	68

Notes:
1. Robust standard errors in parentheses;
2. *** denotes significant at the 1% confidence level; **, 5%; *, 10%;
3. Control variables used in the second stage are also included in the first stage but not reported to save space.