Financial Development in Adversarial and Inquisitorial Legal Systems

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Abstract

This paper suggests as a potential candidate to explain the variation in the level of financial development across legal origins the procedure to collect evidence for a trial: It is adversarial in common law countries and inquisitorial in civil law countries. I present a model of capital accumulation in which financial frictions arise because entrepreneurs may default opportunistically. In investigating the true returns of the insolvent entrepreneur, the adversarial procedure of evidence collection only relies on lawyers whereas the inquisitorial procedure also relies on judges. A higher quality of investigation reduces the burden of financial frictions and fosters financial development. In adversarial legal systems, (i) rich enough creditors enjoy a higher quality of investigation because they can induce lawyers but not judges to exert higher effort, (ii) both guilty and innocent entrepreneurs are more often convicted because lawyers manipulate the evidence while judges do not; this has an ambiguous impact on the quality of investigation.

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1 Introduction

A puzzling stylized fact about legal origins is the apparent superior economic performance of common law countries compared to civil law countries.\textsuperscript{1} La Porta et al. (1997) document that common law countries have larger financial markets while Mahoney (2001) reports that economic growth is also higher in those countries. Hence the question: Does the legal origin of a country matter for its economic performance? One key distinction between these two legal origins is the procedure to collect evidence for a trial: It is adversarial in common law countries and inquisitorial in civil law countries. This paper investigates whether this difference can explain the better economic outcomes of common law countries.

In adversarial systems, the collection of evidence is the task of plaintiffs, defendants, and their lawyers. They prepare their case before, and interview witnesses during the trial. The role of the judge is passive and he renders a decision depending on the evidence presented to him. In inquisitorial systems, the role of the judge is more active as he participates in the collection of evidence himself for example by appointing experts or interviewing witnesses before and during the trial.\textsuperscript{2} This paper extrapolates this distinction and considers an investigation entirely conducted by judges in inquisitorial systems and entirely conducted by lawyers in adversarial systems. A direct consequence is that parties can design the incentives of lawyers by contracting directly with them while this would be more difficult with judges.\textsuperscript{3}

The first implication concerns the determinants of the investigative effort of judges and lawyers. Because individuals cannot choose their judge but can choose their lawyer, parties take the quality of investigation as given in inquisitorial systems

\textsuperscript{1} Broadly speaking, common law is found in Anglo-Saxon countries and their former colonies, and civil law belongs to continental Europe and its former colonies. See Zweigert and Kötz (1998) for further details.

\textsuperscript{2} See Parisi (2002) for more details on adversarial and inquisitorial systems.

\textsuperscript{3} Although judicial corruption is common and can be seen as a form of contracting with the judge, it is not directly related to adversarial and inquisitorial systems and is thus not the object of this paper. Bond (2009) provide an analysis of the role of corrupted judges on contracting. This paper also abstracts from judges’s personal biases. See Gennaioli and Shleifer (2008), Gennaioli (2009), and Gennaioli and Perotti (2009) for a discussion on this topic.
whereas it is a choice variable in adversarial systems. Rich parties, for example, can
decide to hire a more competent and more expensive lawyer in adversarial systems
while they have to deal with the judge they are assigned in inquisitorial systems.
Also, because lawyers can receive payments contingent on their success at trial, it
may be easy to induce them to provide effort. By contrast, judges generally received
fixed payments, and their provision of effort has to rely on other factors like their
benevolence or career concerns.

The second implication concerns the choice of which evidence to present in court.
Because parties want to win a trial and can design their contract with lawyers
accordingly in adversarial systems, their lawyers may have an incentive to conceal
or to manipulate the evidence detrimental to their case in order to maximize their
probability of winning the trial and their payoff. In case, for example, the opinion
of an expert is needed for a case, lawyers may appoint their friends or shop for the
most lenient expert. By contrast, judges are not given any such economic incentives,
at least officially.\footnote{See Footnote 3.}

I study how these differences affect financial development by focusing on a dis-
pute between an investor who want to be repaid by an entrepreneur. The general
mechanism works as follows: Investors can sue the entrepreneurs whom they suspect
have defaulted opportunistically. The role of the legal system is then to investigate
the true earnings of insolvent entrepreneurs and to punish those entrepreneurs found
guilty. Investors are willing to lend more funds when they expect their financial
contract to be well enforced in court. Indeed, when the expected damages are high,
entrepreneurs have a higher incentive to be honest and this fosters lending. Then,
the question is: How do adversarial and inquisitorial systems affect this mechanism?

First, the model predicts that the possibility to manipulate evidence has an
ambiguous impact on financial development. Manipulation of evidence increases
the probability to find an entrepreneur guilty, independently of whether he is guilty
or innocent. Thus, the state is better verified when the entrepreneur is guilty and worse verified when the entrepreneur is innocent. Overall, it is not clear whether verification is better with manipulation of evidence or without, and thus it is not clear whether financial markets and the economy are more developed or not.

Second, the model predicts that those entrepreneurs who are willing to hire competent and expensive lawyers in adversarial systems enjoy a higher quality of contract enforcement than the same entrepreneurs in inquisitorial systems, who do not have the choice of their judge. This could because those investors are wealthier, because they have a strong interest in winning the case, or because it is easier to induce lawyers to provide effort. The opposite is also true. If entrepreneurs are only willing to hire less competent and cheaper lawyers, they face a lower quality of enforcement in adversarial systems than they would in inquisitorial systems. This channel thus suggests that, if financial markets are more developed in common law countries, it may be because investors enjoy a higher quality of enforcement in adversarial systems.

Section 2 and 3 introduce the economic and legal environments. Section 4 compares adversarial and inquisitorial legal systems while their consequences on financial development are analyzed in Section 5. Section 6 tests the robustness of the results by examining alternative legal environments. Section 7 concludes.

1.1 Related Literature and Contribution

The present paper is not the first to provide an explanation for the higher economic outcomes of common law countries compared to civil law countries. None of these alternative explanations, however, relies on adversarial and inquisitorial procedures. Also, this paper suggests a direct link from legal origins to the economy whereas the following references suggest indirect links, from legal origins to legal rules (investor protection) to the economy. See La Porta et al. (2008) for a more detailed review. A first strand of the literature focuses on key differences between
between common and civil law: (i) In common law countries, judges are more independent from the government, and this fosters the protection of private property against state expropriation. (ii) Legal rules in common law countries are more adaptive to a changing environment and therefore more efficient because of the ability of common law judges to make the law through precedents. The argument was made by Posner (1973) and Beck et al. (2003) found some empirical support for it. Another strand of literature argues that the legal origin is a proxy for something unrelated to law. Two examples of such alternative theories are: (iii) The proportion of catholics is higher in civil law countries and is negatively correlated with creditor rights (Stulz and Williamson, 2003). (iv) Politics is more left-wing in civil law countries, thus favoring workers at the expense of investors (Roe, 2000).

The literature on adversarial and inquisitorial systems has focused on comparing the efficiency of these two systems within the court while this paper analyzes the consequences of these two systems on the economy. This change in focus requires at the same time a change in assumptions: It is natural to focus on a financial dispute if one is interested in understanding the role of law on the economy. An alternative could be a patent dispute. By contrast, most of the literature has focused on a more representative dispute, a tort or a property dispute, because it is interested in comparing adversarial and inquisitorial systems in general. In the financial dispute I consider, only the returns of the entrepreneur need to be investigated. As a consequence, the present paper assumes asymmetric information between the parties, because the entrepreneur knows whether he defaulted opportunistically or not whereas the investor does not know. By contrast, in the setting of the following references, both parties need to be investigated. In a car accident, for example, the level of care of both parties needs to be assessed. These papers thus assume symmetric (absence of) information, as neither party is aware of the level of care exerted by the other party. According to Shin (1998), the adversarial procedure is superior because the judges receive two signals instead of one in the inquisitorial
procedure. This argument does not apply to a setting with asymmetric information as only one signal is collected with both procedures. Dewatripont and Tirole (1999) find that adversarial systems are more efficient because less rents have to be given to two biased parties rather than to one neutral party in order to ensure effort. Both systems would be equivalent if they assumed asymmetric information. In Froeb and Kobayashi (2001), the average of two biased pieces of evidence is as informative as the evidence collected by a neutral party. This does not hold anymore with asymmetric information as only one piece of evidence is manipulated unilaterally. Parisi (2002) analyses rent-seeking in adversarial and inquisitorial systems. Rent-seeking disappears when only one party investigates.

This paper is part of a recent effort to integrate more micro-founded legal systems into economic models. Along these lines are the works of Gennaioli (2009) and of Gennaioli and Perotti (2009), who focus on the impact on the form of contracts of judges’ personal biases and limited expertise. The impact of corrupted judges on contracting is considered in Bond (2009). Anderlini et al. (2010) compare the impact of case law and statute law on economic growth. Massenot (2010) studies the role of the litigation and lawyers on the economy. The present paper’s contribution is to focus on the role of the process of evidence collection on the economy. These previous papers are to be contrasted with the literature on investor protection and limited enforcement, that considers law as a black box. In this literature, law is modeled exogenously as a monetary punishment and/or a probability of detection. One reference on economic growth is Castro et al. (2004), who find that better investor protection has two opposing effects on economic growth: It makes entrepreneurs more credit-worthy but the resulting increase in the interest rate reduces future capital accumulation. Cooley et al. (2004) show that economic volatility decreases with the quality of contract enforcement. Shleifer and Wolfenzon (2002) provide a model consistent with a number of stylized facts on corporate finance and investor protection.
2 The Economic Environment

An economy is populated with individuals who live for two periods. Individuals are either entrepreneurs or investors. There are two goods in the economy: capital $k$ and a final good $y$. Capital is used to produce the final good and can be stored. The final good is used as numeraire or is consumed. Everybody is risk neutral and consumes during the second period.

In the first period, cashless entrepreneurs borrow capital $k$ from investors and use it in order to produce $y$ units of the final-good. Their technology is given by:

$$y = \tilde{a}k,$$

(1)

where $\tilde{a}$ is a productivity parameter. It is a random variable that can be high ($\tilde{a} = a_1 > 1$) with probability $p_1$ or low ($\tilde{a} = a_0 < 1$) with probability $p_0$.

Entrepreneurs raise capital $k$ by contracting a loan with investors. At the time of contracting, nobody knows the realization of the productivity $\tilde{a}$ of the project. The loan contract specifies a repayment $r(\tilde{a})$ contingent on the level of productivity. Once the entrepreneur received the capital, he observes privately his productivity, announces it to the investor and repays him accordingly. The problem is that the entrepreneur always has an incentive to claim his project failed in order to maximize his payoff. Whenever the entrepreneur announces that his project failed, the investor knows that the entrepreneur may not have respected the terms of the contract.

In order to solve this conflict of interest, investors can sue entrepreneurs in order to verify their true productivity. The threat of litigation is the only instrument available to investors to ensure that entrepreneurs do not prefer to default opportunistically. The litigation process is described in the following section.
3 The Legal Environment

The part of the model presented in this section can be thought of as a generic legal system. The specific differences between adversarial and inquisitorial legal systems are presented in the next section. When they decide to litigate, investors have the possibility to hire investigators whose job is to investigate or verify the productivity of entrepreneurs. Investigators spend effort collecting evidence that they then present in court. If the evidence is convincing enough, the court awards compensatory damages $d$ to the investor. In other words, a transfer $d$ from the entrepreneur to the investor occurs.

Investigators can draw evidence from a distribution that depends on the true state of the world $a_j$, $j = 0, 1$. The evidence $a_0$ is uncovered with probability $\pi_j$ and evidence $a_1$ with probability $1 - \pi_j$. I also assume that evidence consistent with the true state of the world is more likely to be uncovered by setting $\pi_0 > \pi_1$.

The cost of investigation for the investor is equal to $\sigma c$, where $c$ is the payment to (or the effort of) the investigator and $\sigma$ is a parameter that summarizes all the relevant information specific to a case, like the wealth of the parties, the availability of evidence, or the ease of monitoring the effort of the investigator. If the investor is rich for example, he has a low marginal utility of money and thus a small $\sigma$. If the case is simple, the marginal cost of effort for the investigator is low. As a consequence, the investigator is willing to receive a lower payment for a given effort, thus indicating a small $\sigma$. If it is difficult to monitor the effort of the investigator, he may receive too high a payment for his level of effort. This would be consistent with a high $\sigma$. Overall, the parameter $\sigma$ can be interpreted as a marginal cost of litigation.

The payment $c$ to investigators influences the quantity of evidence collected. Investors can draw zero times, once, or twice from the distribution of evidence. Investigators end up with two pieces of evidence with probability $q$, with one piece
of evidence with probability $\rho(c)$, and with no pieces of evidence with probability $1 - \rho(c)$, with $\rho(0) = 0$, $\rho' > 0$, $\rho'' < 0$ and $\lim_{c \to \infty} \rho(c) = 1 - q$. Independently of what they collected, investigators can decide to present in court no evidence at all, one piece of evidence, or the average of two pieces of evidence.

The conviction rule works as follows: If an entrepreneur announces $a_0$ and one piece of evidence $a_1$ is presented, then the entrepreneur is convicted and has to pay damages $d$. If two conflicting pieces of evidence are presented, conviction does not occur.

I make a few additional assumptions on the nature of the legal system. First, the burden of proof is on the investor’s side in the adversarial procedure. Because entrepreneurs know their level of productivity they do not need to investigate it. Even though entrepreneurs, particularly innocent ones, may oppose evidence to investors, I assume that this is exogenous and reflected in the distribution of evidence. In Section 6.1, I briefly discuss the possibility of introducing entrepreneur’s litigation costs. Second, the allocation of litigation costs is made according to the American rule in which investors bear their litigation costs independently of the outcome of the trial. In Section 6.2, I consider the case of the English rule which imposes that an entrepreneur who is found guilty must reimburse the investor his litigation costs. Third, I assume that whenever a dispute arises, the parties end up in court. In Section 6.3, I show that out-of-court settlement is not an interesting option in the model I consider. Fourth, I assume there exists an insurance mechanism that covers entrepreneurs for the litigation risk such that they have to pay the expected damages to competitive insurers. This assumption is in line with Kofman and Lawarree (1993). The analysis would otherwise be further complicated without changing the insights. Fifth, the courts I consider are perfectly able to enforce contracts that only include variables observable at no cost like the repayment $r$ or the amount lent $k$. Their imperfections lie in their inability to enforce contracts that depend on variables that are costly to observe, like productivity $\tilde{a}$.
4 Differences Between Adversarial and Inquisitorial Legal Systems

The previous section presented a general model of a legal system. This section shows how adversarial and inquisitorial legal systems differ within this context.

Following Posner (2004), the main difference between the two systems is the identity of the investigator. Figure 1 represents a typical trial involving three steps: defense, investigation and decision. While the defense part is generally done by a lawyer and the decision part is the responsibility of a judge independently of the legal family, the investigation part is conducted by lawyers in adversarial systems and by judges in inquisitorial systems. In reality, lawyers also play a role in the investigation in inquisitorial systems but this paper abstracts from it in order to make the distinction between the two systems starker.

The first implication concerns the interpretation of the marginal cost of litigation $\sigma_L$, with $L = A$ if the legal system is adversarial and $L = I$ if it is inquisitorial.

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5 Some countries actually have hybrid legal systems. The proposition to suppress the *juge d’instruction* (investigating judge) in France is one example. This is, however, limited to criminal trials which are not the focus of the problem I consider. Generally speaking, adversarial and inquisitorial systems are an essential feature to distinguish common law from civil law. See Merryman (1969).
First, the parameter $\sigma_L$ may measure the ease of monitoring the effort of a lawyer if $L = A$ and of a judge if $L = I$. Judges are generally tenured and receive a fixed payment. By contrast, lawyers may receive payments contingent on their success at trial or may lose their clients if they perform badly. A given payment $c$ may thus not lead to the same level of effort by lawyers and judges. It is often believed that lawyers are given better incentives than judges to provide effort (Posner, 1973). This would be consistent with setting $\sigma_A < \sigma_I$. Also, the payment to judges is centralized while the payment to lawyers is decentralized. Judges receive the same salary independently of the characteristics of the case. This is in contrast to lawyers, whose payment is highly contingent on the wealth of the parties and on the characteristics of the case. As a consequence, the parameter $\sigma_I$ may represent the marginal cost of litigation of a larger part of the population than just investors, including individuals involved in divorce, property, or employment disputes for example. By contrast, the parameter $\sigma_A$ would only represent the marginal cost of litigation for our representative investor. If we consider a population of investors heterogeneous in $\sigma_L$, the choice of the payment to the judge can only be made contingent on an average $\sigma_I$ while payments to lawyers could be made contingent on different levels of $\sigma_A$.

The second implication concerns the choice of which evidence to present in court. Because they are given different incentives, lawyers only present the evidence that favors their case at trial while judges present all the evidence they have found. The possibility to manipulate or to conceal evidence arises when two conflicting pieces of evidence are found and one could thus be concealed. The assumption that parties only present the evidence that favors their case is standard in the literature (De Wattripont and Tirole, 1999) and is often seen as a downside of adversarial systems (Tullock et al., 1997).

This possibility to conceal evidence affects the probability of convicting an en-
treprenuer depending on whether the system is adversarial or inquisitorial. Denote
by $X_{Lij}$ the probability to convict an entrepreneur. This probability is conditional
on the family of the legal origin $L$, the true type of the entrepreneur $i = 0, 1$, and
the number of pieces of evidence uncovered $j = 0, 1, 2$. Table 1 gives the resulting
analytical expressions. When no evidence is found, the probability of conviction is
zero. When one piece of evidence is uncovered, the probability of conviction is the
probability $1 - \pi_i$ of finding evidence $a_1$ in both legal origins. The table shows that
adversarial and inquisitorial systems only differ when two pieces of evidence are
found, that is when the possibility of manipulation of evidence arises. Conviction
in inquisitorial systems occurs when evidence $a_1$ is uncovered in both draws while
conviction in adversarial systems only occurs when evidence $a_1$ is uncovered in at
least one draw. Also, one can easily check that $X_{A2} > X_{I2}$, that is entrepreneurs
are convicted more often in adversarial systems than in inquisitorial systems, inde-
pendently of whether they are guilty or innocent.

<table>
<thead>
<tr>
<th>Table 1: Probabilities of conviction</th>
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<tr>
<td>Adversarial system</td>
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<tr>
<td>$X_{A0}$</td>
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<tr>
<td>$X_{A1}$</td>
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<tr>
<td>$X_{A2}$</td>
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<tr>
<td>Inquisitorial system</td>
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<tr>
<td>$X_{I0}$</td>
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<tr>
<td>$X_{I1}$</td>
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<td>$X_{I2}$</td>
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We can now compute the ex ante probabilities of conviction $X_{Li}$ only conditional
on the legal origin $L$ and on the true productivity of the entrepreneur $i$:

$$X_{Li}(c) = \rho(c)X_{Li1} + qX_{Li2}$$  \hspace{1cm} (2)

The general quality of verification $X_{L1} - X_{L0}$ increases with the payment $c$ to inves-
tigators because this increases the probability of finding one piece of evidence instead
of nothing. Likewise, it increases with $q$ because finding two pieces of evidence
is better than just finding one. This benefit is, however, smaller for adversarial
systems because evidence can be manipulated.
The downside with the possibility of manipulation of evidence is that innocent entrepreneurs are more often found guilty. The benefit is that guilty entrepreneurs are also more often convicted. It is thus ambiguous whether the general quality of verification $X_{L1} - X_{L0}$ is better in one legal system or the other. Some algebra shows that the quality of verification is better in adversarial systems if $\pi_0 + \pi_1 > 1$ and worse otherwise.

The two legal systems are equivalent if we set (i) $q = 0$ and (ii) $\sigma_I = \sigma_A$. The first assumption rules out the possibility of finding conflicting evidence and thus the possibility of manipulation of evidence. This implies $X_{A_i} = X_{I_i}$. The second assumption implies that the marginal costs of and thus the willingness to pay for litigation are the same in both systems.

5 Financial Development

The two differences outlined in the previous section between adversarial and inquisitorial systems concern: (i) the marginal cost of litigation $\sigma_L$; (ii) entrepreneurs are more often convicted in adversarial systems, independently of whether they are guilty or not. In this section, we study how these differences affect financial development by solving for the optimal financial contract.

Investors offer financial contracts to entrepreneurs. These contracts are defined by an amount to be lent $k$, a repayment contingent on the level of productivity announced by the entrepreneur, $r_0$ if the entrepreneur announces low productivity and $r_1$ if the entrepreneur announces high productivity, and a payment $c$ to the investigator. The objective of the investor is to maximize his expected utility. With probability $p_0$, the project fails and the investor is paid $r_0$, receives expected compensatory damages $X_0d$, and pays the litigation costs $\sigma_Lc$. With probability $p_1$, he is paid the high return $r_1$. Finally, his utility function also includes the opportunity cost of lending, which is equal to $k$, the benefit of storing. Then, the
investor solves:

$$\max_{r_0, r_1, c, k} \quad p_0(r_0 + X_{L0}d - \sigma_Lc) + p_1r_1 - k. \quad (3)$$

Investors only offer contracts that induce entrepreneurs to reveal truthfully their productivity. Otherwise, all the entrepreneurs would announce a low productivity and it would not be a profitable activity to lend. This gives an incentive compatibility constraint for high productivity entrepreneurs, which tells us that the cost of announcing a high productivity $r_1$ should be lower than the cost of announcing a low productivity and facing potential litigation costs $r_0 + X_{L1}d$. The incentive compatibility constraint of low productivity entrepreneurs is not presented as no entrepreneurs would want to pay something if they do not have to. The incentive compatibility constraint of high productivity entrepreneurs is given by the following equation:

$$r_1 \leq r_0 + X_{L1}d. \quad (4)$$

Entrepreneurs have an outside opportunity that gives them a level of utility $u$ that corresponds to the financial contracts offered by alternative investors. This gives a participation constraint for entrepreneurs, which tells us that the expected utility of an entrepreneur should be greater than $u$:

$$p_0(a_0k - r_0 - X_{L0}d) + p_1(a_1k - r_1) \geq u. \quad (5)$$

Finally, entrepreneurs are protected by limited liability and they cannot be asked for a repayment that would give them a negative profit. This repayment is further reduced by the possibility of errors of type 1 in the judicial process. This type of errors happens when innocent entrepreneurs are convicted. This gives the following limited liability constraint:

$$a_0k - r_0 - X_{L0}d \geq 0. \quad (6)$$
These three constraints can be shown to be binding. Solving for this system of three equations and three unknowns gives the following financial contract as a function of $c$:

$$r_0 = a_0k - X_{L0}d,$$  \hspace{1cm} (7)

$$r_1 = a_0k + (X_{L1} - X_{L0})d,$$  \hspace{1cm} (8)

$$k = \frac{u + p_1d(X_{L1} - X_{L0})}{1 - a_0}.$$  \hspace{1cm} (9)

After replacing these solutions in Equation (3), we can solve for the optimal payment $c$ to the investigator. The investor chooses $c$ such that its marginal cost $\sigma_L$ is equal to its marginal benefit. As a consequence, the payment $c$ decreases with $\sigma_L$ and increases with damages $d$.

Investors compete with each other by offering contracts of value $u$ to entrepreneurs. Entrepreneurs shop around and choose the contract that maximizes their utility. If there are enough investors around, there is perfect competition between investors, and we get the following zero-profit condition:

$$p_1r_1 + p_0(r_0 + X_{L0}d - \sigma_Lc) = k.$$  \hspace{1cm} (10)

Replacing Equations (7), (8), and (9) into Equation (10) gives the level of utility $u$ for entrepreneurs delivered by the equilibrium contract. Replacing this value into Equation (9) gives the equilibrium stock of capital of the economy:

$$k = \frac{p_1d(X_{L1} - X_{L0}) - p_0\sigma_Lc}{1 - a_0}.$$  \hspace{1cm} (11)

Consider a change in the technology of investigation. For example, let $X_{L0}$ increase for a given level of $c$. Equation (11) tells us that financial development will then be lower. The reason is that if an entrepreneur expects to be found guilty more often although he is innocent, he can only be asked for a lower repayment
$r_0$ because of limited liability. The profit of investors becomes negative and they adjust by lending less.

Let now $X_{L1}$ increase for a given $c$. Equation (11) tells us that financial development will then be higher. This is because a higher probability of convicting guilty entrepreneurs relaxes their incentive compatibility constraint. This allows the investor to ask for a higher repayment $r_1$ in case of success. The zero-profit condition of investors tells us that investors will also lend more.

An increase in damages $d$ has the two effects described in the last two paragraphs. First it makes it easier to enforce contracts and second it strengthens the limited liability of entrepreneurs. The overall effect on financial development can be shown to be positive because $X_{L1} > X_{L0}$. This gives us a first result:

**Result 1** An improvement in the quality of contract enforcement $(X_{L1} - X_{L0})d$ increases financial development $k$.

This first result is consistent with a number of references that have identified a positive role of contract enforcement on the economy, following the seminal work of North (1990).

### 5.1 Adversarial Versus Inquisitorial

What happens if an economy switches from an adversarial to an inquisitorial legal system? We first analyze the role of manipulation of evidence on financial development. We do so by setting $\sigma_A = \sigma_I$ and $q > 0$. As we already saw, a higher $q$ implies larger probabilities of conviction $X_{L1}$ and $X_{L0}$. Financial development depends positively on $X_{L1}$ and negatively on $X_{L0}$, thus it is not clear whether financial development is going to be higher or lower once the possibility to manipulate evidence is introduced. We get the following result:

**Result 2** Holding $\sigma_A = \sigma_I$, a greater possibility to manipulate evidence or a larger
increases (strictly decreases) financial development \( k \) in adversarial systems compared to inquisitorial systems if \( \pi_1 + \pi_0 \geq 1 \) \( (\pi_1 + \pi_0 < 1) \).

This result is to some extent unexpected as manipulation of evidence is often blamed for being one downside of adversarial systems (Tullock et al., 1997). By contrast, this paper suggests that manipulation of evidence may be good for the economy if it contributes to convicting guilty entrepreneurs and bad if it contributes to convicting innocent entrepreneurs. The net effect of manipulation of evidence is thus ambiguous and depends on the distribution of evidence. Start from an ideal setting where \( \pi_1 = 0 \) and \( \pi_0 = 1 \). In this case, \( \pi_0 + \pi_1 = 1 \) and manipulation of evidence does not have any effect on financial development. Consider now a reduction in \( \pi_0 \) such that innocent entrepreneurs are sometimes convicted. This gives \( \pi_0 + \pi_1 < 1 \) and is equivalent to a higher \( X_{L0} \). As a consequence, manipulation of evidence is harmful for financial development in adversarial systems. Consider now the case \( \pi_1 > 0 \) and \( \pi_0 = 1 \), such that guilty entrepreneurs are sometimes not convicted. This gives \( \pi_0 + \pi_1 > 1 \) and is equivalent to a higher \( X_{L1} \). As a consequence, manipulation of evidence is beneficial for financial development in adversarial systems.

To be consistent with the empirical evidence, we would need to restrict the parameters to the case where manipulation of evidence implies a better verification, that is to \( \pi_1 + \pi_0 > 1 \). This restriction is, however, difficult to justify, even with anecdotal evidence.

We then analyze the impact of the marginal cost of litigation on financial development. We do so by setting \( q = 0 \) and without loss of generality \( \sigma_A < \sigma_I \). We found that the equilibrium payment \( c \) is a decreasing function of \( \sigma_L \). As a consequence, the payment \( c \) and thus the quality of contract enforcement \( (X_{L1} - X_{L0})d \) are higher in adversarial than in inquisitorial systems. Hence the following result holds:

Result 3 Holding \( q = 0 \), financial development \( k \) is higher (strictly lower) in adversarial systems compared to inquisitorial systems.
versarial systems than in inquisitorial systems if $\sigma_A \leq \sigma_I$ ($\sigma_A > \sigma_I$).

Equation (11) is a hump-shaped function of $c$, so this result is not trivial. It can be shown, however, that the equilibrium is always on the increasing part of this function, so that we can restrict our analysis to this part. It takes a few lines of algebra to show that the value of $c$ that maximizes $k$ in Equation (11) is always larger than the value of $c$ that solves the problem of the investor. Intuitively, when investors choose how much to pay the investigator, they internalize the positive effect that this would have on their profit through more lending. As a consequence, they would not choose a $c$ that would induce them to lend less. Then, the result holds.

To be consistent with the empirical evidence, we need to restrict the parameters to $\sigma_A < \sigma_I$. The following informal discussion suggests that this restriction is reasonable. First, one criticism raised against inquisitorial systems is their heavy reliance on judges, whose effort is difficult to control. This is in contrast to the competitive nature of adversarial systems that makes it easier to induce lawyers to provide more effort (Posner, 1973). Then, setting $\sigma_A < \sigma_I$ is consistent with this view. Second, we could interpret $\sigma_I$ as an aggregate marginal cost of litigating for example divorce, property, or employment disputes. By contrast, $\sigma_A$ is the marginal cost of litigation for our representative investor only. Then, setting $\sigma_A < \sigma_I$ amounts to saying that on average, investors are richer and have a lower marginal cost of litigation than the rest of the population. This suggests a new explanation for the higher level of financial development in common law countries. Since investors have a higher willingness to pay for litigation and since they are able to do so in adversarial systems, they enjoy a higher quality of contract enforcement in adversarial than in inquisitorial systems. Similar investors would thus lend more in adversarial than in inquisitorial systems. A corollary is that relatively poor parties in a dispute, for example workers, should achieve a lower quality of contract enforcement in adversarial systems than in inquisitorial systems. This could be consistent with
the work of Botero et al. (2004), who find systematic differences in the labor market and in labor regulation across legal families. Testing this hypothesis is, however, outside the scope of this paper.

An interesting case arises when investors are heterogeneous. Assume there is a proportion $\eta$ of investors in both legal origins with a low marginal cost of litigation $\sigma$ (rich investors), while the rest of investors have a high marginal cost $\overline{\sigma}$ (poor investors). As a result of profit maximization, rich investors are willing to pay a high amount $\overline{c}$ while poor investors are only willing to pay a low amount $\underline{c}$. In adversarial systems, investors are able to pay their desired amounts $\underline{c}$ and $\overline{c}$ and to enjoy the corresponding quality of contract enforcement. By contrast, in inquisitorial systems, all investors enjoy the quality of contract enforcement corresponding to the average of these desired payments, that is to $\tilde{c} = \eta \underline{c} + (1 - \eta) \overline{c}$. Whether investors actually pay $\tilde{c}$ or their desired payment $\underline{c}$ and $\overline{c}$ does not affect the following result:

**Result 4** Holding $q = 0$, a larger heterogeneity $\overline{\sigma} - \sigma$ between investors decreases financial development $k$ in adversarial systems compared to inquisitorial systems.

This result holds because $k$ is concave in $c$. Intuitively, following a switch from an adversarial to an inquisitorial system, rich investors decrease their lending by a smaller amount than poor investors increase theirs. This mechanism is similar to Banerjee and Newman (1993) and Galor and Zeira (1993), who claim that reducing inequality is beneficial for economic growth under credit constraints and a concave production function. This result is in contrast to a claim made by Posner (1973) that redistribution through the legal process is harmful for the economy because it impedes the functioning of the invisible hand.

6 Alternative Legal Environments

In this section, I show how different assumptions on the legal environment affect the previous results.
6.1 Entrepreneurs’ Costs of Litigation

If the costs of litigation of entrepreneurs is exogenous, the analysis would be trivially modified. More rents would have to be given to entrepreneurs in order to satisfy their limited liability constraints. As a consequence investors would lend a smaller amount of money and economic growth would be lower.

6.2 English Rule

So far, the paper used the American rule of allocation of litigation costs, that is the investor always had to incur his litigation costs whatever the outcome of the trial. With the English rule, the loser of the trial has to compensate the winner for his litigation costs. In the context of this model this means that whenever an entrepreneur of low productivity loses a trial he has to reimburse the investor his litigation costs. This rule modifies the program of the investor in the following way: First the investor only has to incur the litigation cost when he loses a trial, which happens with probability $1 - X_0$. Second, all the damages that entrepreneurs have to pay when they lose a trial are increased by the litigation costs $c$. The problem of the investor becomes:

$$\max_{r_0, r_1, c, k} p_0 (r_0 + X_0(d + c) - (1 - X_0)\sigma c) + p_1 r_1 - k,$$

such that

$$r_1 = r_0 + X_1(d + c),$$

$$k(a_0 - r_0 - X_0(d + c)) = 0,$$

$$p_0(a_0 k - r_0 - X_0(d + c)) + p_1(a_1 k - r_1) = u.$$

Allowing investors to compete with each other and solving the model as before
gives us the stock of capital:

\[ k = \frac{p_1(d + c)(X_1 - X_0) - (1 - X_0)p_0\sigma c}{1 - a_0}. \]  

(16)

The first consequence of adopting the English rule is that it increases the amount of damages paid by guilty entrepreneurs to \( d + c \) instead of \( d \). The second effect is to decrease the expected litigation spending to \( (1 - X_0)p_0\sigma c \) instead of \( p_0\sigma c \) due to the fact that investors only pay when they lose the trial. These two effects have two consequences: First, they increase the payment \( c \) to investigators because the marginal benefit of litigation increases while its cost decreases; Second, they make borrowers more credit-worthy for the same reasons. The overall consequence of the English rule is more financial development, independently of the legal family.

_Softer English rule._ In many countries, the English rule is not strictly applied in the sense that if the investor would incur large costs of litigation for example by choosing a very expensive attorney, only a fraction of these costs may have to be reimbursed. My results are however still valid with this modification of the allocation rule.

### 6.3 Out-of-court Settlement

In order to save the litigation costs, parties may decide to settle out of court. One party will make an out-of-court settlement offer and the dispute will be settled if the other party accepts the offer. In the real world, out-of-court settlement occurs in a large majority of conflicts.

The maximum offer investors can make such that high productivity entrepreneurs announcing low productivity are indifferent between paying the expected fine and accepting the out-of-court settlement offer is \( X_1d \). It does not change anything for low productivity entrepreneurs but all the high productivity entrepreneurs anticipate out-court settlement and will claim being of low produc-
activity because by doing so their expected fine would be equal to \(X_0d\) instead of \(X_1d\). In other words, the contract is not incentive-compatible anymore because the screening ability of the legal system is no longer used. In this case, legal systems do not affect the efficiency of loan contracts as no lending occurs.

This model does not make a very interesting case for out-of-court settlement. This is because there are no alternative instruments to screen entrepreneurs. To keep the problem interesting, I thus assume that the investors commit to go to court when entrepreneurs announce low productivity.

### 6.4 A Social Planner in Inquisitorial Systems

The paper has assumed that the resources spent on litigation in inquisitorial systems are the result of profit maximization by investors, an unreasonable assumption. In this section, I allow a social planner to maximize the sum of investors’ and entrepreneurs’ profits in order to decide on the quality of contract enforcement, while nothing is changed in adversarial systems. The program of the social planner in inquisitorial systems is now:

\[
\max_{r_0,r_1,c,k} \quad p_0(a_0k - \sigma c) + p_1a_1 - k, \tag{17}
\]

under the same constraints than before. The objective function is now larger for a given \(c\) because it takes into account the positive effect of a larger \(c\) on the profit of the entrepreneur. As a consequence, this leads to one more difference between the two systems, as the payment \(c\) to investigators and thus the quality of contract enforcement in inquisitorial systems is now larger.
7 Conclusion

The objective of the paper has been to answer the question: Why do common law countries have larger financial markets than civil law countries? It addressed this puzzle by focusing on the procedure of evidence collection: It is adversarial in common law countries and inquisitorial in civil law countries. The main difference between these two procedures concerns the identity of the investigator: a lawyer in adversarial systems and a judge in inquisitorial systems. The model predicts that manipulation of evidence has an ambiguous impact on financial development. A more promising answer to our question could be that investors enjoy a higher quality of contract enforcement in adversarial than in inquisitorial legal systems. This is made possible by the decentralized nature of the adversarial process that allows rich parties to spend more on litigation and thus to improve the quality of contract enforcement. This theory, however, would require further research to be validated.

References


