

Custom in the Shadow of the Formal Law: An Economic Analysis

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Abstract

In the literature addressing issues of legal pluralism in the context of developing economies, the formal law is typically conceived as the locus of an all-or-nothing choice: either it is used, or it is ignored and informal rules are followed instead. In this paper, we argue that the formal law, under certain conditions, causes the conflicting custom to go some way toward producing the change intended by the legislator. As a result, even if the formal law is not resorted to in an explicit manner, the simple fact that it exists and that people whose interests concur with its prescriptions can threaten to use it, might create a situation in which its objectives are partly met. The conditions under which this statement holds true are elucidated and then illustrated by means of several examples referring to land issues in SubSaharan Africa, particularly with respect to women's rights. Moreover, it is argued that moderate pro-poor laws might actually be more effective than radical ones.

Keywords: custom, statutory law, inequality, legal reform.

JEL codes: K40, O17, D74

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1 Introduction

1.1 The Issue of Legal Pluralism

How the modern state has to deal with the custom is a key issue in many developing countries. In the social sciences, it is usually addressed with the help of the concept of legal pluralism which, in its most general meaning, refers to a situation of coexistence of several law systems. In a more restrictive sense, it points to the simultaneous existence of a formal legal system of statutory laws with customary principles or informal rules. The formal law may be intended for either replacing or complementing the informal rule. In the latter case, legal pluralism is seen as a permanent situation and the different laws deal with separate matters: for example, the formal law regulates commercial, criminal, or constitutional aspects of human life, while civil and personal matters are governed by the local customary law. In the former case, where legal pluralism is conceived of as a temporary outcome, substituting the formal for the informal law may be due to two distinct rationales. In the first situation, the formal law serves the purpose of codifying, crystallizing, simplifying and making uniform the customary rules and practices. In such circumstances, informal rules appear to be “the foundations on which formal rules are built” (Knight, 1992, p.172; see also North, 1990). In the second situation, the formal law aims at bringing a change that the custom inhibits. The formal and the informal laws are then seen as conflicting with each other.

At least two problems can arise when legal pluralism is intended to be temporary. To begin with, there may be an uncertainty about whether the formal law or the custom actually applies. As pointed out by Knight (1992), the enactment of a new formal law (1) alters the information about the equilibrium that the rule seeks to produce, and (2) it lays down sanctions against behaviour prescribed by the old rule. Whether the new formal law will replace the existing custom then depends on the ability of the new information and the sanctions to change the existing expectations. There are three reasons why actors might not trust that the formal law will be recognized and followed. First, the expectations, which have been formed in the past, may be too enduring and strong to give way to new ones. Second, the new rule may be ambiguous, being subject to multiple interpretations that could not be sorted out through the experience of time. And, third, there is uncertainty as to whether the sanctions under the new rule will actually be enforced (pp. 185-186).

When the required change in expectations does not take place because of one or several of these reasons, customary rules tend to persist, and formal laws destined to replace them remain ‘dead letters’. In the conceptual universe of the institutions-as-equilibria approach, the new law is not recognised as an institution because a certain representation becomes an institution only if the agents mutually believe in it. In other words, the new law must be a focal point in order to replace the prevailing custom (Aoki, 2001, p. 13; Greif, 2006, pp. 3-53; Basu, 2000, pp. 111-15).¹ For instance, laws which have been enacted in countries

¹Note that the same type of problem may arise when a foreign statutory law is imported to replace an existing domestic legislation. As argued by Berkowitz et al. (2003), the transplanting of formal law imported from abroad will not, alone, alter

of SubSaharan Africa with the aim of preventing excessive fragmentation of rural lands –whether through inheritance or through land sale transactions– have never been really enforced. This is due not so much to people’s ignorance of the law as to their widespread belief that it runs counter to deeply entrenched customary principles (such as the rights of all male children to receive a portion of the family land), and is therefore unlikely to be followed by others or to be backed by appropriate sanctions (André and Platteau 1998). In countries where the law forbids brideprice payments (e.g., Côte d’Ivoire, Gabon, Central African Republic), people continue to follow the custom as though this law does not exist (Ntampaka, 2004, pp. 128-30). In Peru, the new water law ("ley del agua") that prescribes fee payments by users of irrigation water meets with determined opposition from members of Andean communities. According to a deeply entrenched custom, indeed, water is a communal good that should remain free.

The second problem is typical of societies strongly differentiated in terms of wealth, power and status. In such societies, indeed, rich people are generally tempted to use their leverage or their informational advantage to manoeuvre multiple legal frameworks for their own benefit (Moore, 1978). A striking example of this possibility, well substantiated in the literature, concerns the application of laws providing for formal land rights or titles. Experience with land registration and titling schemes has shown that well-informed, powerful and usually educated individuals often succeed in manipulating the customary law to claim large tracts of land that they then hasten to register under the freehold system of tenure (Doornbos, 1975, pp. 60, 66, 73; Glazier, 1985, p. 231; Barrows and Roth, 1989, p. 8; Berry, 1993; Platteau, 2000, pp. 165-68; Jacoby and Minten, forthcoming)

The general picture that emerges from the literature dealing with legal pluralism is rather pessimistic: except in cases where the statutory law is grounded in customary rules, legal pluralism tends to produce neutral or negative effects (see e.g. Chanock, 1985; Lund 1996, 1998; Lund and Hesselning, 1999; Mackenzie, 1996). In this paper which is specifically concerned with unequal societies, we want to argue that this pessimism is probably excessive: when the legislator wants to change the existing social order, the formal law under certain conditions, may cause the conflicting informal rule to evolve in the direction pointed by the law. More precisely, even if the formal law is not resorted to in an explicit manner, the simple fact that it exists and that people whose interests concur with its prescriptions can threaten to use it, might create a situation in which its objectives are partly met.

From the observation that a state legislation is rarely applied, one may not therefore infer that it has little or no impact on people’s behaviour. An immediate implication is that the situation of legal pluralism may persist for a long time despite the initial intention of the legislator to bring an end to it by displacing informal rules and customs. The ability of the latter rules to adapt under the constraint of a new legal framework is the critical factor explaining why legal pluralism may endure. When the formal law is intended

the behavior of agents. The effects of legal transplants depend on the acceptance and internalization of formal law (see, e.g. Pistor and Wellons 1999, Pistor et al. 2003).

to complement the custom, rather than to regulate all aspects of human life, the existence and persistence of legal pluralism are a direct consequence of the legislator's decision. By contrast, and this is where our contribution lies, when the intent is to substitute the formal law for the custom, legal pluralism may obtain as a self-perpetuating equilibrium outcome of strategic interactions between arbiters and claimants.

The above analytical perspective, it may be noted, enables us to account for an observation frequently made by social scientists: customary rules, far from being the static and rigid outcomes that economists depict as stable (Nash) equilibria, are continuously evolving in reality. Moreover, and most interestingly, several scholars have stressed that transformation of customs may partly occur as a result of the existence of statutory laws which have the effect of conferring a stronger bargaining position on some particular section(s) of the population. For instance, we are told that "local landholding systems are not the expression of an unchanging 'traditional law', but the fruit of a process of social change, which incorporates the effects of national legislation" (Lavigne Delville, 2000, p. 114); or that legal support effectively adds authority to women's voice since their land claims are thereby strengthened even though they do not necessarily resort to the formal court (Rao, 2007, p. 312). What these empirical statements imply is that both claimants and informal judges believe that the formal law will be enforced. Otherwise, it would not have the effect of strengthening the bargaining power of the people disadvantaged by the custom.

1.2 A Brief Survey of the Relevant Law and Economics Literature

The existing literature of the economic analysis of law (see, for example, Posner 1998 or Cooter and Ulen 2004) so far has not devoted much attention to the evolution of customary law induced by the introduction or changes in formal law. This gap exists for two reasons. On one hand, the current economic analysis of customary law (see Parisi 1998 for an excellent brief review) has not studied the behavior of customary judges, concentrating more on the question of the emergence of customary norms and of the adherence of economic agents to these norms (*opinio iuris*). On the other hand, the study of custom in the shadow of existing formal law (Epstein 1998) has been conducted mainly from the normative perspective, addressing the social desirability of preserving the customary practices. In contrast, this paper studies - from a positive perspective - the mechanics of evolution of customary law by explicitly modelling the behavior of customary judges and the evolution of their incentives as the formal law gets introduced or changed.

Nevertheless, we remain in the tradition of the economic analysis of law, by modelling the customary judge as a rational agent who maximizes his utility. We also assume that this utility arises from prestige motives (Posner 1998: 582) and from the desire to write a decision that is close to his preferences (Miceli and Cosgel 1994; Rasmusen 1994). Furthermore, as in these two latter papers, the judge faces the trade-off between writing his preferred decision and its potential reversal if one of the parties makes recourse to the formal law.

A strand of the law and economics literature that addresses a related question is the analysis of alternative dispute resolution (ADR), such as arbitration or mediation (see Mnookin 1998 for a brief survey). In this literature, the contending parties can (or sometimes must) use arbitration before appealing to a court. A key assumption is that the parties can choose among several potential arbitrators (which are typically experts closely familiar with the issues involved in the dispute). One fundamental result is the arbitrator exchangeability (Ashenfelter 1987), meaning that the arbitrators' equilibrium decisions tend to vary in an unpredictable way (i.e., such decisions are statistically exchangeable). This is because of the competitive pressure caused by the fact that both contending parties can rule out an arbitrator whose decision they expect to be unfavorable for their interests. Shavell (1995) studies the incentive effects arising when ADR is added to the formal litigation process. He shows that pre-dispute agreements to resort to ADR increases the expected utility of the parties and increases social welfare. Our analysis differs in the direction of study: we consider the effect of the introduction of formal law in the setting where informal law already exists.

Another related question addressed in the ADR literature is the enforcement of arbitration decisions (Posner 1998: 280). Based on his analysis of American legislation concerning arbitration statutes, Benson (1995) makes an interesting claim that backing arbitration decisions by legal sanctions is not necessarily welfare-increasing. Indeed, such sanctions can kill the incentive of using arbitration, since contending parties usually prefer arbitration so as to avoid a lengthy legal process.

The reality of developing countries, however, severely limits the applicability of the existing analysis of ADR. First, developed countries have achieved a high level of legal integration, and the usefulness of arbitration procedures arises from the need for less cumbersome and more private dispute settlement mechanisms. In developing countries, genuine situations of legal pluralism exist owing to the relatively recent emergence of statutory law. Second, contending parties cannot choose the customary judge among several alternatives. In a small village setting, usually there is only one judge, and the only alternative to him is the formal court. This implies that the competition mechanism studied by Ashenfelter (1987) cannot be easily translated into developing countries' setting.

Finally, a key issue in the case of developing countries is the role of inequality. To our knowledge, this question has not been addressed by the law and economics literature. This paper is the first attempt to fill this gap. Nor has the other central issue as to what is the optimal statutory law in the presence of an informal law been addressed. More specifically, if the legislator wants to increase the welfare of the poor, is it more efficient to enact a radical or a moderate pro-poor law?

1.3 Structure of the paper

The remainder of the paper is organised as follows. In Sections 2 and 3, we present a simple game-theoretic model with the purpose of proving the above statement that, even if not explicitly used or activated, a new

formal law may, under certain conditions, bring changes in people’s behaviour via its impact on customary rules which most of them continue to follow. To allow for legal pluralism, - more exactly legal dualism -, the model features two laws, the statutory law and the custom, which are represented by a formal judge and an informal judge or arbiter who are able to enforce their respective rulings. Moreover, to incorporate the assumption of social heterogeneity, the model distinguishes between two types of possible claimants, the rich people whose interests tend to be well protected by the custom, and the poor whose interests tend to be neglected. People dissatisfied with the custom can appeal to the formal judge, yet the informal arbiter acts strategically, and may move some distance away from his preferred outcome in order to retain cases in the informal court. Two models are successively developed. In the first step (section 2), we assume that all the poor individuals are identical. The informal judge, when dealing with a conflict between a poor and a rich individual, makes a judgement that will either drive the poor individual to appeal to the formal court or to accept the verdict thereby confirming the predominance of the custom. The conditions under which all possible conflicts are kept within the informal jurisdiction will thus be highlighted. In the second step (section 3), poor individuals are assumed to be heterogeneous so that a mixed equilibrium may obtain under which a fraction of the poor group has recourse to the formal court while the rest are content with customary judgements. In addition, the number of community members staying within the ambit of the customary jurisdiction bears upon the benefits and costs associated with keeping an additional case under this jurisdiction. After characterizing the steady state equilibria thus obtained, and deriving the comparative statics results (subsection 3.1), we undertake to study the effect of inequality on the informal law (subsection 3.2), and to assess the welfare implications for the poor of a more or less radical pro-poor formal law (subsection 3.3). We show that under certain conditions too radical a pro-poor legislation may be less favorable to the poor than a more moderate one.

Section 4 provides the reader with a number of examples illustrating how changes in various key parameters of the model affect the manner in which conflicts are being resolved. These examples draw from the literature on women’s rights and land tenure, particularly in the context of SubSaharan Africa. Section 5 summarizes the main findings of the paper.

2 A Model of Legal Dualism

2.1 Outline of the model

We consider a community in which conflicts can be arbitrated either by a formal judge or by a customary authority. The latter lives in the community and has, in each case, a preferred judgement which represents the community’s dominant custom at the present time. In other words, the custom is modeled as a fairness standard that has come to prevail following a long term evolution that we do not try to explain here. Note

that the informal judge is not necessarily a single individual but may be a council composed of esteemed members of the community.(e.g., elders, lineage heads). The formal judge operates in the framework of a court and bases his judgement on the written law. However, even assuming, as we do in the following exercise, that people have perfect information about this law (and sufficient trust in its enforceability), the modern judge's verdict is not completely predictable for reasons explained in the next subsection.

The community comprises of two groups of people distinguished according to whether their interests are protected or not by customary rules. In case of conflict between them, the resolution is either informal - it then takes place in the community - or formal - it takes place in a court. If the custom prevails, the players participate in a social exchange game, while, if one of them appeals to the formal court, he is excluded from that game. Each non-excluded player contributes to the production of a social good and benefits from it².

Given that social exclusion involves a cost for the community, the assumption that such exclusion always takes place when a member appeals to the formal court needs to be justified. Villagers depend on the local authority not only for the resolution of conflicts but also for a variety of other functions, such as representation of the community in negotiations with outside agents. Therefore, it is in their interest that his prestige is preserved and this is why they would be willing to punish those who challenge his authority by appealing to a formal court of law. As long as the loss to the community from a weakening of the authority of the informal judge exceeds that of excluding a member of the community, social exclusion will be a credible threat, and actually implemented following any appeal to the formal law.

Another, perhaps more compelling reason is suggested by a growing literature based on experimental psychology. Following this line, community members would accept to incur a cost by punishing a fellow member who appeals to the formal court because of a feeling of anger that such a deviant act arouses in them. In their view, appealing to a stranger judge is tantamount to betraying one's community and may thus give rise to what Axelrod has called a reaction of 'vengefulness' (Axelrod, 1997, Chap. 3; see also Frank, 1988; Rabin, 1993).

2.2 Uncertainty in the formal legal system

There are three main reasons why the formal judge's verdict is assumed to be not completely predictable.

First, there is an information problem. Quoting Robert Bates, one can state this problem as follows: "although those who impose the statutory law make efforts to inform themselves (about the case), they remain outsiders and are therefore less likely to possess detailed information than would neighbours and

²Our model may well apply to a caste system such as that found in India. It just requires that we understand the customary law as representing the interests of the highest caste(s). Lower castes may also have their own customs but, when a conflict arises between one of their members and a member belonging to the highest caste(s), the (informal) law of the latter outweighs that of the former. It is only by turning to the formal law system that lower caste members can hope to win against high caste members. Moreover, the social exchange game featured in our model corresponds to the sphere of relationships between high and low caste members.

kin" (Bates, 2001, p. 64). Since witnesses are expected to present conflicting evidence before the judge, the verdict eventually pronounced by him may well deviate from the ruling expected by the claimant on the basis of his reading of the statutory law. For example, unlike the custom that prevailed until recently in SubSaharan Africa, the statutory land law recognizes the right of an owner to alienate his land. Yet, local witnesses or customary authorities can render the law void by arguing that the claimant is not the genuine owner of the land that he has sold or wishes to sell. In an extreme situation, the evidence is so contradictory that the judge may decide to abdicate and refer the case back to the informal settlement procedure.

Second, the judge may have not one but several bodies of law available to him to support his decision. In other words, the situation may be more complex than the state of legal dualism that has been depicted in section 1. Note that legal pluralism in the above sense is more frequently observed in countries with important Muslim populations. In Tanzania, for example, up until recently, inheritance was governed by different laws of succession, including customary, Islamic and statutory laws. The customary law is the most unfavourable to women and the statutory law, which tends towards giving equal recognition to women's rights, is the most favourable. The Islamic law is in between. In deciding which law should apply to a particular case, courts tend to base their judgement on what is known as the "mode of life test" whereby the ethnicity and religious affiliation of the heir, as well as the intent of the deceased are taken into account. As a matter of principle, customary law is applied to African Christians unless they can prove that the family had abandoned the African mode of life, in which case statutory law applies. For African Muslims, the Islamic law is applied, unless it can be proven that the deceased had other intentions (Longway, 1999 as cited by Hilhorst, 2000, p.187).³ Uncertainty clearly inheres in the above situation since it is rather easy for claimants to distort information regarding "the mode of life" of the deceased so as to obtain the most favourable judgement before the formal court. But disagreement about the intentions of the deceased may be genuine rather than opportunistic. In the court of Koutiala (Mali), for example, a judge explained how he dealt with the case of a woman who claimed an equal inheritance share against the will of her only brother, on the basis of the statutory law. Applying the "mode of life test", he asked the brother whether he was a "good Muslim". Since the answer was positive, he applied the Islamic law granting the plaintiff half the share of her brother (see verse 12 of sourate IV of the Quran). Clearly, the plaintiff could have hoped to get a full share while the defendant could expect her to be rebuked in the name of the custom. In Senegal, like in Mali, the lawmaker has explicitly allowed the Muslim law to be invoked in matters of inheritance because it realized that the French-inspired statutory law is too distant from the customary law to offer a realistic alternative to it (Ntampaka, 2004, pp. 153-67)

Third, even in cases where there is a unique body of statutory laws, interpretation problems may create uncertainties. This point is much emphasized in the literature and is known in the legal profession as the

³In 2001, laws voted in 1999 (the Land Act No. 4 and the Village Land Act No. 5) and providing for the integration of customary practices into the modern law were eventually put into operation (personal communication of Rasef Madaha).

problem of the subjectivity of the judge. The flexibility of the formal law can thus be used by the judge to gain privileges for himself or to make it more congruent with his own preferences and values. The former possibility is illustrated by the case of the Forestry Law in Cameroon where the overriding consideration of the bureaucrats in charge of the law is to interpret it in such a way as to vest themselves with power and privilege (Egbe, forthcoming). An example of the latter possibility is provided by the new Family Code of Morocco which contains provisions much more favourable to women than the old one based on a combination of the Islamic and customary laws. Factual evidence nevertheless shows that the new law is less strictly applied by judges with more conservative inclinations (personal field observations of Imane Chaara).

One could alternatively conceive of the modern judge's behaviour as being not totally unpredictable, say, because as is observed in some African contexts, he systematically consults with customary authorities or takes inspiration from customary practice before reaching a decision. In these conditions, the formal judgement will obviously be less distant from the customary judgement than would be the case if the former is totally unpredictable. Since we are not certain that this second scenario is more prevalent than the first - claimants ignore the type of the formal judge, for example, they ignore whether he is more or less sensitive to customary norms - we will make the most economical assumption that the formal judgement is unpredictable.

2.3 Setup of the model

Consider a one-shot game involving an informal judge, M , and two individuals, a rich one (R) and a poor one (P)⁴. There is a dispute between R and P that is first mediated by the informal judge. Once the informal judge has given his verdict, the disputants face a binary choice: they can accept the verdict of the informal judge or appeal the verdict at a court of formal law⁵. Once the dispute is resolved, the players participate in a social exchange game.

Formally, the timing within the game is as follows: (1) M chooses verdict v^M ; after hearing this verdict, (2) P decides whether to appeal to the formal court (F); if she chooses F , the community excludes her, the social game without P is played, and the payoffs of all parties are determined; otherwise (3) R decides whether to appeal to the formal court (F); if she chooses F , the community excludes her, the social game without R is played, and the payoffs of all parties are determined; otherwise (4) both parties accept the verdict v^M , the social game without exclusion is played and the payoffs of all parties are determined.⁶

⁴The 'rich-poor' labelling need not be interpreted in a strict sense. Indeed, the so-called 'rich' individual is the one who is favoured by the prevailing custom whereas the 'poor' individual is the one whose interests are neglected by it.

⁵Alternatively, we may assume that the informal judge initially mediates the case only if his mediation is requested by both parties. This would enable a disputant to strategically bypass the informal court but it implies the somewhat strong informal assumption that the disputants have knowledge about the preferences of the informal judge and can thus anticipate his judgement.

⁶The issue of the timing of events turns out to be critical. Indeed, if the verdict of the informal judge is implemented immediately and he has therefore full discretion over the verdict, his decision cannot in fact be influenced by the existence of the formal law. But it is highly unrealistic to assume that, when a formal court exists, parties may not appeal to it if they are disappointed by the verdict of the informal judge. We will therefore consider an alternative timing of events in which either

We represent the range of possible verdicts of the case by the interval $[0, 1]$, where a verdict of 0 is most favourable to the rich individual and a verdict of 1 is most favourable to the poor individual. The formal law is to be represented by a specific verdict, $v^F \sim U \left[f - \frac{1}{2\phi}, f + \frac{1}{2\phi} \right]$ which is a stochastic variable with mean f and concentration parameter ϕ (a higher value of ϕ indicates a lower variance of the verdict). We assume that f and ϕ are such that the bounds of the distribution fall strictly within the interval $[0, 1]$.

When the case is brought to the informal judge, he has to choose a verdict $v^M \in [0, 1]$. Therefore, this interval is his strategy set. The informal judge derives a positive (constant) utility, measured in terms of social status and prestige, whenever a conflict case is brought before him. Moreover, he has a ‘preferred’ verdict $I \in [0, 1]$, such that his welfare is decreasing in the distance between the actual verdict and the preferred verdict. His preferred verdict is closer to the interests of the rich persons in the community. We need not think of the preferred verdict I as being fixed. Indeed, it might evolve under the influence of exogenous factors such as technological change.

The social exchange game is modelled in the following manner. P , R , and M jointly produce an excludable public good. All (non-excluded) players enjoy the full benefit of the good and we assume that the community fully resolves the free-rider problem. Moreover, there is some cost-sharing rule such that each (non-excluded) player K contributes $C^K(Z)$ to the public good, where Z stands for the set of non-excluded players. Let’s denote by A the full set of players, A_R the set with R excluded, and A_P the set with P excluded. Similarly, $Q(Z)$ denotes the benefit of the public good. Obviously, we assume that $Q(Z) - C^K(Z) > 0$ for any Z and K . Moreover, the net benefit from the public good for a stand-alone player is assumed to be zero, and the net benefit for the informal judge in a bigger coalition is always higher than in a smaller coalition (this is necessary to avoid strategic renunciation of the case by the informal judge).

Thus, M ’s utility is

$$\begin{aligned} u^M(v^M) &= X + Q(A) - C^M(A) - g(v^M - I) \text{ if his verdict is accepted} \\ &= Q(A_R) - C^M(A_R) \text{ if } R \text{ challenges his verdict} \\ &= Q(A_P) - C^M(A_P) \text{ if } P \text{ challenges his verdict} \end{aligned}$$

where X is the prestige in utility terms that the judge acquires from having his verdict unchallenged, and $g(\cdot)$ denotes his loss function from choosing a verdict that is different from his preferred one. Note that this function is not necessarily symmetric, i.e. we can allow for M ’s loss being different if he biases the verdict toward the poor or the rich.

The preferences over possible verdicts are given by $u^R(1 - v)$ for the rich type, and by $u^P(v)$ for the poor type, and $u^R(\cdot)$ and $u^P(\cdot)$ are increasing and concave. The concavity of the function ensures that party may appeal to the formal court if he is not satisfied with the verdict of the informal judge. This possibility can act as a restraint on the actions of the informal judge, and in consequence, he can commit to giving a verdict that is not too much at variance with that prescribed by the formal court. The case where the decision of the informal judge is applied immediately is treated in Appendix A.

the individuals are averse to the uncertainty of the verdict in the formal court. In addition, there is a cost, represented by c^R and c^P respectively for the two types if the plaintiff opts for the formal court rather than the informal court. This cost captures the administrative expenses involved in going to a formal court including, not only the fees at the court but also, if a wider interpretation is adopted, the cost of access to information, transportation costs, the presence or absence of organizational support, etc. It may also include the psychological cost of bringing a local dispute into the open by taking it to an external agency.

Now, we can write the utility to each type of individual from choosing the formal or informal court to settle a dispute assuming that no social game is played outside the native community⁷. For the rich type, the expected utility from choosing the formal court equals $Eu^R(1 - v^F) - c^R$, the utility from choosing the informal court (without P going to the formal court) equals $u^R(1 - v^M) + Q(A) - C^R(A)$, while the utility from choosing the informal court (with P going to the formal court) equals $Eu^R(1 - v^F) + Q(A_P) - C^R(A_P)$.

Similarly, the expected utility to the poor type from choosing the formal court equals $Eu^P(v^F) - c^P$, the utility from choosing the informal court (without R going to the formal court) equals $u^P(v^M) + Q(A) - C^P(A)$, while utility from choosing the informal court (with R going to the formal court) equals $Eu^P(v^F) + Q(A_R) - C^P(A_R)$.

2.4 Equilibrium

We can proceed to determine the equilibrium of the game using backward induction. In terms of the timing described above, agent R appeals to the formal court at step (3) if and only if the following condition holds:

$$Eu^R(1 - v^F) - c^R \geq u^R(1 - v^M) + Q(A) - C^R(A) \quad (1)$$

Similarly, agent P would appeal to the formal court at step (2) if and only if the following condition holds:

$$Eu^P(v^F) - c^P \geq u^P(v^M) + Q(A) - C^P(A) \quad (2)$$

We denote by \bar{I} the value of v^M at which the condition (1) is satisfied with equality, and similarly by \underline{I} the value at which (2) is satisfied with equality. Then we can assert that a verdict v^M by the informal judge at step 1 of the game is unopposed by both parties if and only if it falls within the interval $[\underline{I}, \bar{I}]$. Clearly, if $I \in [\underline{I}, \bar{I}]$, then the judge chooses his preferred verdict I , as both parties would be content with this verdict and there will be no further repercussions on the community. However, if $I \notin [\underline{I}, \bar{I}]$, the informal judge faces a choice between a different verdict which satisfies both parties but does not correspond to his ideal, or allowing appeal to the formal court by the dissatisfied party, and retribution by other community members. There are two possible cases.

⁷For the purpose of what we want to show in this paper, the assumption that outgoing people form social networks in their new location adds an unnecessary complication.

(a) $I < \underline{I}$. In this case, the judge's preferred verdict I is, from the point of view of the poor player, too biased towards the rich. Then, there exists a critical verdict value at which the judge's payoff from letting the case go equals that of keeping the case "in". This critical value, \bar{v} , satisfies the equation

$$X + Q(A) - C^M(A) - g(\bar{v} - I) = Q(A_P) - C^M(A_P). \quad (3)$$

Any verdict above \bar{v} is too biased towards the poor for judge's taste, and he is better off triggering the appeal of the poor to the formal court. If $\underline{I} < \bar{v}$, the judge is better off choosing \underline{I} and keeping the case in.

(b) $I > \bar{I}$. The judge's preferred verdict I is, from the point of view of the rich player, too biased towards the poor. Then, there exists a critical verdict value, \underline{v} , that satisfies the equation

$$X + Q(A) - C^M(A) - g(\underline{v} - I) = Q(A_R) - C^M(A_R). \quad (4)$$

Any verdict below \underline{v} is too biased towards the rich for judge's taste, and he is better off triggering the appeal of the rich to the formal court. If $\bar{I} > \underline{v}$, the judge is better off choosing \bar{I} and keeping the case in. Otherwise, the judge is better off letting the case go to the formal court.

Now we can characterize the equilibrium more precisely. The equilibrium outcome of the game is:

- (i) if $I \in [\underline{I}, \bar{I}]$, the informal judge chooses I , and the verdict goes unchallenged. The payoff of the judge is $u^M(I) = X + Q(A) - C^M(A)$. The payoff of the rich is $u^R(1 - I) + Q(A) - C^R(A)$. The payoff of the poor is $u^P(I) + Q(A) - C^P(A)$.
- (ii) if $I < \underline{I} \leq \bar{v}$, the informal judge chooses \underline{I} , and the verdict goes unchallenged. The payoff of the judge is $X + Q(A) - C^M(A) - g(\underline{I} - I)$. The payoff of the rich is $u^R(1 - \underline{I}) + Q(A) - C^R(A)$. The payoff of the poor is $u^P(\underline{I}) + Q(A) - C^P(A)$.
- (iii) if $\bar{v} < \underline{I}$, the formal judge chooses v^F . The payoff of the judge is $Q(A_P) - C^M(A_P)$. The payoff of the rich is $Eu^R(1 - v^F) + Q(A_P) - C^R(A_P)$. The payoff of the poor is $Eu^P(v^F) - c^P$.
- (iv) if $\underline{v} \leq \bar{I} < I$, the informal judge chooses \bar{I} , and the verdict goes unchallenged. The payoff of the judge is $X + Q(A) - C^M(A) - g(I - \bar{I})$. The payoff of the rich is $u^R(1 - \bar{I}) + Q(A) - C^R(A)$. The payoff of the poor is $u^P(\bar{I}) + Q(A) - C^P(A)$.
- (v) if $\underline{v} > \bar{I}$, the formal judge chooses v^F . The payoff of the judge is $Q(A_R) - C^M(A_R)$. The payoff of the rich is $Eu^R(1 - v^F) - c^R$. The payoff of the poor is $Eu^P(v^F) + Q(A_R) - C^P(A_R)$.

Situation (i) corresponds to the benchmark state in which the custom remains unaltered and the rich members of the community have their own way going. The most interesting state for the purpose of this paper is (ii) since the informal judge is bending his decision in favour of the poor under the impact of the formal law: the custom evolves in a pro-poor direction.

2.5 Comparative Statics

Here we analyse what happens to bounds \underline{I} and \bar{I} when the parameters of the model change. These parameters are: the mean (f) and the dispersion (the inverse of ϕ) of the verdict in the formal court, the costs of accessing the formal court (c^R and c^P), and the payoff parameters of the social game ($Q(Z)$, $C^P(Z)$, $C^R(Z)$).

Proposition 1 *(i) An increase in f , the mean verdict of the formal judge, raises both \underline{I} and \bar{I} , the respective thresholds at which the poor and the rich are indifferent between an informal resolution of the conflict and an appeal to the formal court. An increase in ϕ , which corresponds to a decrease in the variance of the formal verdict, raises \underline{I} and decreases \bar{I} .*

(ii) An increase in c^P , the cost of access to the formal court for the poor, decreases his threshold verdict \underline{I} . Similarly, an increase in c^R , the cost of access to the formal court for the rich, increases his threshold verdict \bar{I} .

(iii) An increase in the net benefit from the social game, expands the interval $[\underline{I}, \bar{I}]$ in which both parties are satisfied with the verdict of the informal judge.

The intuition behind these results is as follows (the proof is provided in Appendix B). As the formal court becomes more favourable, say to the poor agent, he has a stronger incentive to appeal the formal court while the rich agent is less inclined to do so. A more radical statutory law does increase the probability that the informal judge will be unable to retain the case within his jurisdiction: when both \underline{I} and \bar{I} are raised, it becomes more likely that \bar{v} will become smaller than \underline{I} . When there is lower uncertainty about the verdict of the formal court, both agents are less reluctant to make use of it, and vice versa. Note that the poor benefits from a pro-poor legal reform in the formal system even when this entails greater uncertainty about whether the formal judge would make rulings in accordance with the new law. As long as the new law is followed in the formal court in some instances, the bargaining position of the poor is strengthened as a result of the legal reform. Finally, an increase in the cost of accessing the formal court discourages each agent from doing so and, therefore, expands the interval where the verdict of the informal judge is acceptable to both. A higher net benefit from the social game implies a higher opportunity cost of appealing to the formal court and thus expands the range over which a decision by the informal judge can prevail.

The following proposition describes how the bounds \underline{v} and \bar{v} respond to a change in the parameters of the model (see Appendix B for the proof).

Proposition 2 *(i) An increase in X , the prestige associated with mediating a case raises \bar{v} , the upper threshold above which the informal judge lets the case go to the formal court and lowers \underline{v} , the corresponding lower threshold.*

(ii) An increase in the net gain to the informal judge from the participation of the rich party in the social game lowers \underline{v} . Correspondingly, an increase in the net gain to the informal judge from the participation of the poor party in the social game, increases \bar{v} .

The intuition behind these results is again straightforward. There are two factors that influence the informal judge's payoff from keeping the case in the informal court. First, the informal judge faces a trade-off between the cost of deviating from his preferred verdict and the loss in terms of prestige from having the case judged in the formal court. When X is larger, the informal judge is willing to propose a solution further from his preferred verdict. More rigorously, if $\bar{v} < \underline{I}$ and $I < \underline{I}$ in the initial situation and the increase in X is significant enough to cause \bar{v} to overstep \underline{I} , the informal judge becomes ready to adapt his ruling so as to keep the poor claimant within the customary jurisdiction. Second, there is a loss to the informal judge whenever either party is excluded from the community. As such a cost of excluding someone from the social game becomes higher, the informal judge is again willing to deviate further from his preferred verdict to avoid this exclusion.

2.6 Extension: Heterogeneity in the Severity of Disputes

Thus far, we have assumed that all disputes are of the same nature. Here, we consider heterogeneity in the severity of disputes, specifically, the extent to which individuals care about the outcome of a dispute, compared to the cost necessary to ensure that a settlement is favourable to oneself. For example, when the dispute is related to a large amount of property, a party may be willing to take the case to the formal court, even if the administrative and social costs are high, if the formal court is likely to produce a more favourable verdict.

Formally, to express this idea, we characterise any dispute according to a parameter $\gamma \in [1, \gamma_{\max}]$ and rewrite the utilities obtained by the poor and the rich from a specific verdict v as $\gamma u^P(v)$ and $\gamma u^R(1-v)$ respectively. We denote by $G(\gamma)$ the distribution of the severity of disputes. For notational simplicity, we abstract away from the payoffs of the social game. This will not qualitatively affect the results in this section. Then, the critical values \underline{I} and \bar{I} , are given by the following equations:

$$\gamma u^P(\underline{I}) = \gamma E u^P(v^F) - c^P \quad (5)$$

$$\gamma u^R(1 - \bar{I}) = \gamma E u^R(1 - v^F) - c^R \quad (6)$$

We denote by $\underline{I}(f, \gamma)$ and $\bar{I}(f, \gamma)$ the solution to these two equations. Then, it is straightforward to show that $\underline{I}(f, \gamma)$ is increasing and $\bar{I}(f, \gamma)$ is decreasing in γ . This means that the interval of verdicts that would attract both parties to the informal court is smaller for more critical disputes. Intuitively, an individual is more willing to bear the cost of accessing the formal court when the stake of the verdict is higher.

Now, suppose that f is very different from I such that $X - g(f - I) < 0$. If $f > I$, then as γ increases, $\underline{I}(f, \gamma)$ approaches f . Therefore, for γ sufficiently large, we have $X - g(\underline{I}(f, \gamma) - I) < 0$. On the other hand, for γ sufficiently large, we have $I \notin [\underline{I}(f, \gamma), \bar{I}(f, \gamma)]$. Combining the two results, we conclude that for large γ , we have $v^M(f, \gamma) \notin [\underline{I}(f, \gamma), \bar{I}(f, \gamma)]$ (since the threshold verdict for the poor is too costly for the informal judge). A similar reasoning applies with respect to $\bar{I}(f, \gamma)$ when $f < I$. Therefore, for the most critical disputes, the informal judge would not be willing to accommodate both parties. Consequently, these would end up in the formal court.

Let $\bar{\gamma}(f)$ be the threshold value of γ , such that all disputes for which $\gamma > \bar{\gamma}(f)$ go to the formal court; and all disputes for which $\gamma < \bar{\gamma}(f)$ go to the informal court. Then $\bar{\gamma}(f)$ is given by the solution to the following equations:

$$X - g[\bar{I}(f, \gamma) - I] = 0 \text{ if } f < I \quad (7)$$

$$X - g[\underline{I}(f, \gamma) - I] = 0 \text{ if } f > I \quad (8)$$

It is possible to show that as f moves away from I , the threshold value $\bar{\gamma}$ decreases. Therefore, more disputes will end up in the formal court when the formal law is very different from I . Formally, we obtain the following results (see Appendix B for the complete proof):

Proposition 3 (i) *The interval of informal judgements that are acceptable to both parties is smaller when the dispute is more severe.*

(ii) *The fraction of disputes that are resolved in the formal court is increasing in the distance between the formal law and the custom.*

3 A Dynamic Framework where Community Size Matters

3.1 Characterisation of equilibria

In this section, we investigate the actions of the informal judge and the disputants when the value of the social game and/or the prestige associated with mediating a case (denoted by X in the model) depend on the current size of the community, and thus on how many people have already been excluded.

For this purpose, suppose the population consists of N individuals, and each person is either rich or poor. The population is also heterogeneous in terms of outside options, i.e. the utility people can achieve when they exit the community. The distribution of outside options in the population is given by the cumulative distribution function $F(\cdot)$ such that the fraction of the population with a per-period outside option below ω equals $F(\omega)$.

We rewrite the value of the social game for each individual as $Y(n) = Q(n) - C(n)$, where n is the current size of the community. We assume that $Y(n)$ is increasing and concave, such that the value of social

inclusion is increasing in the size of the community. We also assume that the prestige of the informal judge is a function of the same, $X(n)$, with $X'(n)$ positive: there is a loss in prestige whenever an individual exits the community. In addition, $X''(n)$ is negative, such that the loss in prestige increases with each exit. Finally, we assume that the cost function g is increasing and convex in $|v^M - I|$.

In any period, a fraction δ of the population is engaged in disputes. Each such dispute involves one rich and one poor individual. If both parties are members of the community, they will have the option of taking their case to the informal judge. If either party does not belong to the community, then the dispute may only be resolved in the formal court. The actions available to each player and the timing of events will be as described in section 2.3, with one exception. We shall assume that the informal judge is required to apply the customary law uniformly to all cases that are presented to him in any given period. Formally, he announces the customary judgement v_t^M at the beginning of each period, and he is committed to apply it consistently throughout the period.

After the custom has thus been announced, disputants choose whether to take their case to the formal or the informal court (assuming that both belong to the community). If either side seeks the assistance of the formal law, then, as before, he is excluded from the community, and he receives his outside option in each period thereafter. We shall assume for the main analysis that the disputants make this decision myopically; that is, they take into consideration the benefits and costs of their choice in the current period only. However, as shown in Appendix D, the outcome is not qualitatively different when they also take into account the loss of future benefits from leaving the community. Without loss of generality, we assume through the remainder of this discussion that the formal law on average is more pro-poor than the custom. Assuming that people do not coordinate their decision to exit the community, given a custom v^M , a poor myopic agent with outside option ω would choose to have the case settled in the informal court if and only if

$$Y(n) + u(v^M) \geq \omega + Eu(v^F) - c^P \quad (9)$$

Given n and v^M , we obtain a threshold value $\bar{\omega}(n, v^M)$ at which the condition in (9) is satisfied with equality ($\bar{\omega}$ is also a function of c^P , f and ϕ , as defined in the previous section but the notation is suppressed here for sake of legibility). That is, a person with outside option $\bar{\omega}(n, v^M)$ is indifferent between choosing the informal and the formal court to resolve a dispute. We let $H(n, v^M) \equiv F(\bar{\omega}(n, v^M))$. Then $H(n, v^M)$ is the fraction of the population that is willing to remain under the customary system when the community size is n , and the declared custom is v^M . Furthermore, we define the function $n^*(v^M)$ as follows:

$$n^*(v^M) = \max \left\{ n : H(n, v^M) \equiv \frac{n}{N} \right\} \quad (10)$$

In words, $n^*(v^M)$ is the largest community size for which, given custom v^M , the number of people willing to remain in the community equals the actual size of the community. Suppose that the initial size of the

community is N . If $n^*(v^M) < N$, then those with the highest outside options will opt to resolve their disputes in the formal court and therefore be excluded from the community. This process of exclusion will continue till the population shrinks to size $n^*(v^M)$. At this stage, the community will consist only of individuals with outside options below $\bar{\omega}(n^*(v^M), v^M)$ who, by definition will choose to resolve their disputes in the informal court. On the other hand, if $n^*(v^M) = N$, then the exclusion process will never begin, because no individual in the community sees any advantage in taking a dispute to the formal court. Whenever the community is such that all those who remain within it seek to have their disputes resolved by means of the informal court, we shall say that the community is in *steady-state*.

It is useful to represent the steady-state graphically. Figure 1 plots the function $H(n, v)$ against n for some given distribution $F(\cdot)$, and given v . For this example, we have assumed that $H(N, v) < N$, such that individuals within the community with the highest outside options would have an incentive to leave when the community is of size N . The community will attain its steady-state at $n^*(v)$ which in the figure is given by the intersection of the curve and the 45-degree dotted line.

The figure also makes it clear why we are interested in $n^*(v)$, the highest value of n (smaller than N) at which the curve and the 45-degree line intersects. Starting from an initial size of N , the community will find its steady state at the point of intersection furthest to the right. While the curve and the line may intersect for smaller values of n , these cannot be attained (for a given set of parameters) as there is no further exit once the steady-state at $n^*(v)$ has been reached. Multiple equilibria are therefore precluded.

A change in any of the parameters c^P , f , and ϕ would affect the threshold outside option for each n and v , therefore shifting the curve in figure 1 up or down and giving rise to a new steady-state. In particular, for a given v , an increase in c^P raises the curve and thus leads to a higher steady-state, while an increase in f or ϕ lowers the curve and leads to a lower steady-state.

A higher v^M shifts the curve upwards so as to yield a larger n^* . Yet, note that $v = v^M$ is endogenous to the strategy of the informal judge. Because the prestige of the informal judge is increasing in the size of the community, he has an incentive to deviate from the traditional custom if he is thereby able to retain people within the community. For simplicity, we shall consider the custom that maximises steady-state level of utility of the informal judge. This will not necessarily correspond to the optimal strategy, especially if disputes within the community are infrequent. However, if the steady-state is attained quickly because of frequent disputes and exits from the community or, if the judge is patient, then the optimal steady-state choice should closely approximate the optimal strategy. The custom that maximises the steady-state level of utility for the informal judge is given by

$$v^{M*} = \arg \max_v X(n^*(v)) + g(v - I) \quad (11)$$

If we assume that $f'(\omega) \leq 0$, then the maximand in (11) is globally concave in v . Then the problem has a

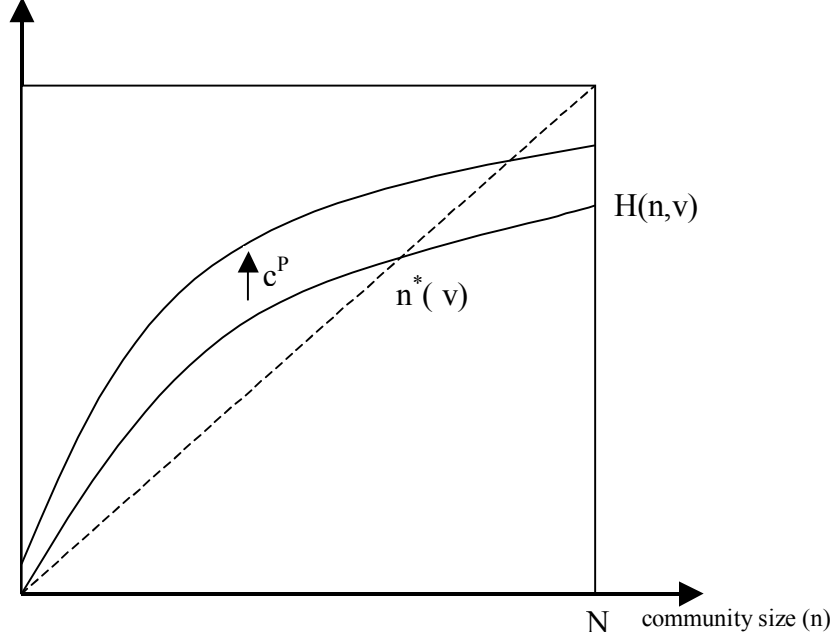


Figure 1:

unique interior solution given by the following first order condition:

$$X'(n^*(v)) \frac{f(\omega) u'(v)}{1 - f(\omega) Y'(n^*(v))} + g'(v - I) = 0 \quad (12)$$

where we have used the normalisation $N = 1$ and have substituted for $\frac{\partial n^*}{\partial v}$ using (10) and the definition of $\bar{w}(n, v^M)$. We can now consider how the optimal policy for the informal judge changes with parameters c^P , f and ϕ . The comparative statics results are described in the following proposition (see Appendix B for the complete proof).

Proposition 4 : *If $f'(\omega) \leq 0$, i.e. the density of the outside option is non-increasing in its value, then the optimal choice of custom for the informal judge, v^{M*} is (i) decreasing in c^P , the cost of accessing the formal court for the poor; (ii) increasing in f , the mean of the verdict of the formal judge; and in ϕ , the inverse of the variance of the formal verdict.*

However, the steady-state size of the community is (iii) increasing in c^P ; and (iv) decreasing in f and ϕ .

The proposition states that any change in the formal legal system (as described by the parameters c^P , f and ϕ) that makes it more attractive for a poor individual to exit the community would also induce the informal judge to opt for a law or custom that is correspondingly more pro-poor. However, this shift in the

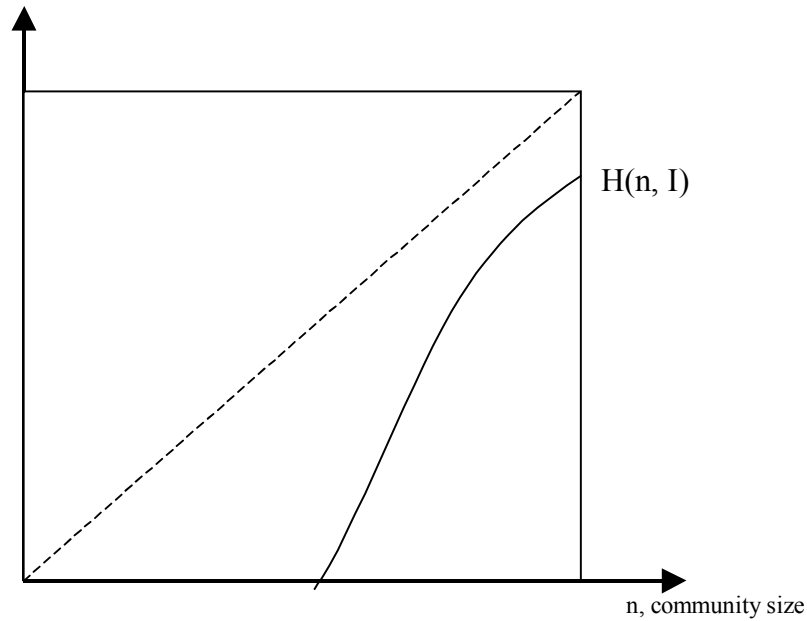


Figure 2:

customary law would not entirely offset the pull of the formal legal system. The poor would still opt for it in greater numbers and the community will reach its steady-state at a smaller value of n .

The above analysis is restricted to situations where the customary law is preserved and coexists with the modern statutory law. Within the same framework, a different type of situation may arise where the former is superseded by the latter. Such a situation is depicted in figure 2. Here, the curve $H(n, I)$ lies entirely below the 45-degree line. It may be too costly for the informal judge to adopt a customary law $v^M > I$ so that the curve $H(n, v^M)$ intersects with the dotted line. Then he would choose $v^M = I$, which would lead to exit by the individuals with the highest outside options, followed by an exodus by the remainder of the poor in the community. Such a situation is likely to occur when the value of the social exchange game declines steeply when individuals initially begin to leave the community, and/or a large fraction of the poor in the community have very attractive outside options. Since these conditions are not very likely to be observed in reality, the scenario in which only rich members of the community remain within the ambit of the custom is perhaps implausible.

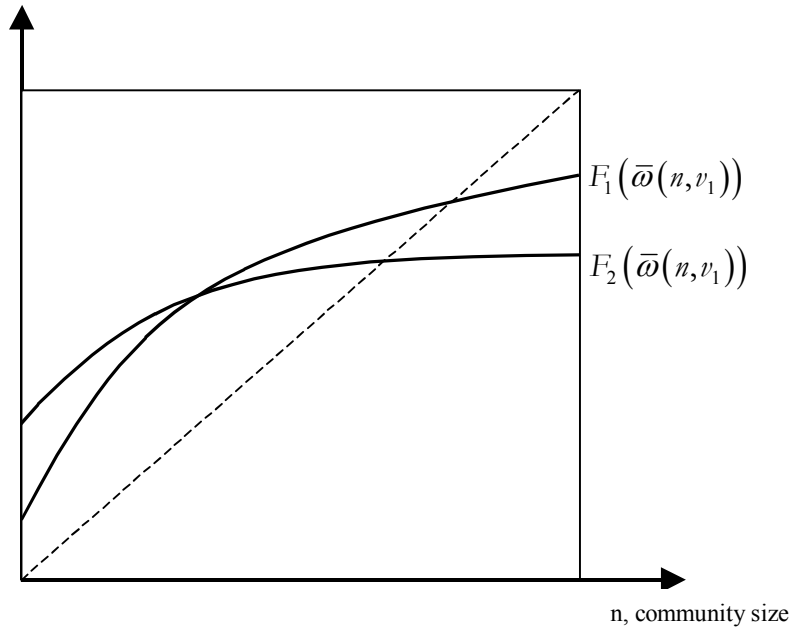


Figure 3:

3.2 Effect of Inequality on the Informal Law

It is evident from the discussion in the previous section that the optimal choice of law for the informal judge depends on the distribution of outside options in the poor section of the community. This effect can be illustrated by plotting the fraction of the population that is willing to remain within the community against n for different distributions of ω . This is done in figure 3 for two distributions $F_1(\cdot)$ and $F_2(\cdot)$ which satisfy the following conditions:

$$F_2(\bar{\omega}(0, v_1)) > F_1(\bar{\omega}(0, v_1)) \quad (13)$$

$$F_2(\bar{\omega}(N, v_1)) < F_1(\bar{\omega}(N, v_1)) \quad (14)$$

$$F_2'(\bar{\omega}(n, v_1)) < F_1'(\bar{\omega}(n, v_1)) \text{ for } n \in (0, N) \quad (15)$$

$$F_1''(\cdot) \leq 0, F_2''(\cdot) \leq 0 \quad (16)$$

Given conditions (13)-(15), the distribution $F_2(\cdot)$ describes a community characterised by higher inequality in the sense that (in its 'poorer' section) there are more individuals who have very strong outside options and are inclined to exit even when the community is large; and also more individuals who have very weak outside options and remain within the community system even when the social exchange game has little value. With more individuals at extreme values, there are fewer individuals in the middle of the distribution.

The assumptions in (16) ensure, as in the previous section, that the maximisation problem for the informal judge is globally concave.

Comparing the optimal choice of the informal judge for the two distributions $F_1(\cdot)$ and $F_2(\cdot)$ can provide some insight into the effect of increasing inequality on the custom. To aid the analysis, it will be useful to consider a third distribution $\tilde{F}_2(\cdot)$ defined as follows:

$$\tilde{F}_2(\omega) = F_2(\omega - \eta) \quad (17)$$

where η is implicitly given by the equation $F_2(\bar{\omega}(n_1, v_1) - \eta) = F_1(\bar{\omega}(n_1, v_1))$ where n_1 is the steady-state size of the community when the custom is described by v_1 ⁸. A change in the distribution of outside options from $F_1(\cdot)$ to $F_2(\cdot)$ can then be decomposed into (i) a ‘pivot’ around the initial steady-state at n_1 , leading to the distribution $\tilde{F}_2(\cdot)$, followed by (ii) a parallel shift in the outside options of each person in the distribution, which leads to $F_2(\cdot)$. The decomposition is illustrated in figure 4 (included in Appendix C) for the case where $\eta > 0$ (note that $\eta > 0$ implies that \tilde{F}_2 lies entirely above F_2 so that the steady-state size of the community for F_2 is smaller than that for F_1 , and the converse is true when $\eta < 0$).

The change from $F_1(\cdot)$ to $\tilde{F}_2(\cdot)$ consists of a worsening of outside options for individuals below $\omega(n_1, v_1)$ and an improvement of outside options for those above. The outside option of the marginal person remains at $\omega(n_1, v_1)$. Therefore, the only difference between the two distributions that is relevant for the maximisation problem in (11) is that the latter has a lower density in the relevant region, around n_1 (the curve is flatter). Consequently, the informal judge does not have as strong an incentive to accommodate the poor and he chooses a lower value of v .

On the other hand, the change from $\tilde{F}_2(\cdot)$ to $F_2(\cdot)$ is a simple shift in the outside option of each individual in the distribution. If $\eta > 0$, then it results in an increase in the outside option of each individual by η . In terms of the condition in (9), this is equivalent to a decrease in the cost, c^P , of accessing the formal court by η . From Proposition 4, we know that the choice of custom by the informal judge becomes more favourable to the poor as c^P decreases. Therefore, the informal judge would choose a higher value of v . The opposite is true if $\eta < 0$.

Therefore, the effect of a change in the distribution of outside options from $F_1(\cdot)$ to $F_2(\cdot)$ on the optimal custom can be thought of in two separate stages. In the first stage, a change from $F_1(\cdot)$ to $\tilde{F}_2(\cdot)$ leads to a decrease in v . In the second stage, the change from $\tilde{F}_2(\cdot)$ to $F_2(\cdot)$ leads to an increase or decrease in v depending on whether η , as defined above, is positive or negative. Formally, we have the following proposition (the proof is provided in Appendix B).

Proposition 5 *The impact of increasing inequality on the custom – as in a change in the distribution of outside options from $F_1(\cdot)$ and $F_2(\cdot)$ satisfying conditions (13)-(16) – can be decomposed into two effects.*

⁸Here and in the remainder of this section, the function $\bar{\omega}(\cdot)$ is as defined previously, but with regard to the distribution $F_1(\cdot)$ instead of $F(\cdot)$.

First, the ‘pivoting’ of the distribution of outside options tends to make the custom less favourable to the poor. Second, the shift in the distribution makes the custom more or less pro-poor, depending on whether the outside option of the individual who is indifferent between the two legal systems in the initial steady-state improves or worsens with the new distribution. Additionally, the pivoting of the distribution tends to lower the size of the community in the steady-state. A shift in the distribution that tends to make the custom more pro-poor also increases the steady-state size of the community, and vice versa.

The basic lesson from Proposition 5 is that if the outside option of the marginal individual does not change significantly in the new situation, or if it worsens, a rise in inequality in the distribution of outside options tends to make the custom less favourable to the poor. As a result, the fraction of the poor opting out of the customary system increases.

3.3 Welfare Analysis and Public Intervention

A legal reform that makes the formal law more favourable to the poor has three distinct effects on the welfare of the poor. First, those who had previously opted out of the custom and currently use the formal system to settle their disputes receive a direct benefit from the reform. Second, those who remain within the ambit of the custom benefit indirectly since the customary authority always shifts its judgements in favour of the poor to dissuade members of the community from abandoning the customary system. However, we know from Proposition 4 that some additional members will nevertheless leave the informal system following a pro-poor legal reform. This leads to the third effect: a loss in the value of the social exchange game for those who have remained in the now reduced community.

Mathematically, we can represent the aggregate social welfare of the poor individuals in the population for specific values of f, ϕ – parameters which describe the formal system – as follows:

$$F(\bar{\omega}) \{Y(n^*) + \delta u(v^M)\} + \int_{\bar{\omega}}^{\omega^{\max}} [\omega + \delta Eu(v^F) - \delta c^P] dF(\omega)$$

The first term $F(\bar{\omega})$ is the fraction of the population which remains within the community when $\bar{\omega}$ is the threshold outside option and the expression within the first parenthesis is the expected per-period utility for each community member. The term within the second parenthesis is the expected per-period utility of an individual with outside option ω who has left the community and the integral represents the average utility of these individuals. Then we can obtain the marginal effect on social welfare of a pro-poor legal reform by differentiating this expression with respect to f :

$$n^* \left\{ Y'(n^*) \frac{dn^*}{df} + \delta u'(v^M) \frac{dv^M}{df} \right\} + (1 - n^*) \delta \frac{dEu(v^F)}{df} \quad (18)$$

Here, the three effects outlined above can be seen clearly. The term $Y'(n^*) \frac{dn^*}{df}$ represents the loss in social welfare for each community member when someone is excluded from the community while $\delta u'(v^M) \frac{dv^M}{df}$ is

the gain to these same members from having a customary authority that is now more favourable to the poor. Finally, the term $\delta \frac{dEu(v^F)}{df}$ is the gain for a poor individual who has already left the community.

The interesting question to ask is whether and under what conditions a moderate pro-poor reform can be superior to a radical reform from the viewpoint of the poor themselves. To determine these conditions, we consider the second derivative of the social welfare function with respect to f . Derivating throughout the expression in (18) with respect to f , we obtain

$$= [Y'(n^*) + n^*Y''(n^*)] \left(\frac{dn^*}{df} \right)^2 + [n^*Y'(n^*)] \frac{d^2n^*}{df^2} + \delta \frac{d^2Eu(v^F)}{df^2} - \delta \frac{dn^*}{df} \left\{ \frac{dEu(v^F)}{df} - u'(v^M) \frac{dv^M}{df} \right\} - n^*\delta \left\{ \frac{d^2Eu(v^F)}{df^2} - u''(v^M) \frac{dv^M}{df} - u'(v^M) \frac{d^2v^M}{df^2} \right\}$$

The second derivatives of n^* and v^M with respect to f depend on the third derivative of the functions $X(\cdot), Y(\cdot), g(\cdot)$. Therefore, they can be ignored if we assume that these third derivatives are close to zero. Furthermore, if utility is linear in the verdict following a dispute, we can ignore the terms involving the second derivatives of the utility function. Then, we obtain the following expression for the second derivative of the objective function:

$$[Y'(n^*) + n^*Y''(n^*)] \left(\frac{dn^*}{df} \right)^2 - \delta \frac{dn^*}{df} \left[\frac{dEu(v^F)}{df} - u'(v^M) \frac{dv^M}{df} \right] \quad (19)$$

We would obtain a corner solution if this expression is positive. Since we know from Proposition 4 that the informal judge never reacts enough to a legal reform to accommodate all remaining individuals within the community, we can show that $\frac{dv^M}{df} < 1$. Therefore, the second term in (19) is positive. Furthermore, if the elasticity of the marginal benefit of the social game with respect to the size of the community is sufficiently low, then the first term is also positive⁹. Thus, we get the following result:

Proposition 6 *If the elasticity of the marginal benefit of the social game with respect to the size of the community is below 1 and utility is linear in the outcome of a dispute, then either abiding by the custom or carrying out a radical reform dominates a moderate reform in the formal law in terms of the social welfare of the poor.*

The intuition behind Proposition 6 is as follows. Exclusion of individuals from the community leads to a loss through the social exchange game for those who remain within the ambit of the custom. But as

⁹Specifically, the first term is positive or negative depending on the sign of $Y'(n^*) + n^*Y''(n^*)$. We can conclude that if the elasticity of marginal benefit of the social game with respect to community size is below 1 then the entire expression is positive since

$$-\frac{\frac{dY'(n^*)}{Y'(n^*)}}{\frac{dn^*}{n^*}} < 1 \iff Y'(n^*) + n^*Y''(n^*) > 0$$

Then, the social welfare function is convex and the optimal solution is a corner solution.

the formal law becomes more radical, and more of the poor leave the community, this loss is suffered by a diminishing number of people. If the elasticity of the marginal benefit of the social game with respect to community size is below 1, then the first effect is offset by the second, and thus the net social loss for the poor declines as the formal law becomes more radical. Under these circumstances, a radical reform would dominate a moderate reform. At the same time, abiding by the custom may dominate a radical reform if exit by any individual from the community entails a significant cost for those who remain behind.

Under the quite plausible assumptions that (i) the utility function is sufficiently concave, and (ii) the net benefit from the social exchange game is sufficiently sensitive to the size of the community, the social welfare function is concave, implying that the implementation of a moderate law is the optimal reform.¹⁰ A strong concavity of the utility function means that the poor attach little additional value to a verdict that favours them more than a moderate (equitable) outcome. This feature is likely to be observed whenever the poor do not value strong departures from custom-based outcomes because they have somehow internalised the social norms embedded in tradition. If this internalisation process is driven by the rich who benefit more from the custom, the existence of an interior solution follows from the fact that the interests of the rich are implicitly taken into account by the poor. In these circumstances, as noted by Chirayath, Sage, and Woolcock (2005), "Imposing formal mechanisms on communities without regard for the local level processes and informal legal systems may not only be ineffectual, but can actually create major problems" (p. 5). As has been suggested earlier (subsection 2.2), in West Africa, the legislator has realized that the statutory law inherited from the French colonial period was too distant from the prevailing custom in at least some matters (e.g., inheritance). It therefore allowed another law system closer to the custom (the Islamic law) to be optionally applied in the modern court.

There may thus exist an optimal moderately pro-poor legal reform that the legislator should enact to promote the interests of the poor. Another available strategy, as is evident from Proposition 4 consists of taking steps aimed at reducing the cost of access to the formal court for the poor.

4 Application: Formal laws and informal rules in the case of women's rights

This section presents an example illustrating the main contention presented in Section 2, i.e. a formal law can have an indirect influence on behaviour even if not explicitly activated.

In the Senegal river valley, all populations are Muslim and they have been so for several centuries. Indeed, islamization of these societies resulted from the colonisation of the (middle) valley by successive waves of foreign conquerors since the 10th century, and maraboutic power used the 1776 revolution in Senegal to

¹⁰If the social game is extremely valuable, or of little value, we may still obtain the result that abiding by the custom or a radical reform dominates a moderate reform.

assert itself and establish the Almaami regime based on the Islamic law (Minvielle, 1977). It is, therefore, not surprising that local inhabitants are quite aware that the Qur'an contains provisions that deal explicitly with inheritance. In particular, there is a Qur'anic prescription to the effect that women should inherit half of the share of their brothers. Despite the existence of this religious prescription, and perfect information about its content, the customary principle according to which women do not inherit at all has been generally followed until recently. The idea that daughters are entitled to inherit a share of the family land is deemed unacceptable in patriarchal societies because of the fear that ancestral lands may fall into stranger hands or be excessively split, especially when marriage practices follow the rule of virilocal exogamy (Goody, 1976). Yet, this observation runs counter to Timur Kuran's statement that in a matter such as inheritance that it addresses explicitly, the Qur'an carries an explicitly strong authority (Kuran, 2003, 2004).

In the above situation, women never thought of invoking the Islamic law to advance their interests lest they should antagonize their male relatives and be compelled to forsake key social protections that they have traditionally enjoyed. Under the customary land tenure system, indeed, women are insured against various contingencies, in particular the prospects of separation/divorce, widowhood, and unwed motherhood. In such circumstances, they typically enjoy the right to return to their father's land where they are allowed to work and subsist till they find a new husband.(see, e.g., Cooper, 1997, pp. 62-63). In terms of our static model, this means that the cost of appealing to the Islamic law (considered here as the formal law) and of resorting to the local marabout (considered here as the formal judge) was too high in terms of (insurance) benefits foregone in the social game for the formal channel to confer bargaining power upon rural women. Moreover, the psychological cost of taking a land dispute to the formal judge was also perceived to be large insofar as, in the women's view, open disputes between close kin "are to be avoided at all cost"(Cooper, 1997, p.79). In terms of our dynamic model, we are in the case where the steady-state size of the community equals its initial size.

Over the last decades, however, as shown by a study of sixteen villages located in the delta area (department of Dagana) and the middle valley (departments of Podor and Matam), the cost of being excluded from the social game has fallen as a result of an increase in women's education and an expansion of non-agricultural employment opportunities for them (Platteau et al., 1999). Moreover, it appears that women who have completed their primary schooling and those who have a non-agricultural occupation (even after excluding marketing of agricultural products) have a tendency to manifest their opposition against customary practices such as the levirate system (whereby a widow is remarried to the brother of her deceased husband). Although the study did not measure the proclivity of (progressive) women to call customary inheritance practices openly into question or to invoke the Islamic law, it is interesting to note that the custom has recently evolved toward enhancing women's rights.

There is no evidence, though, that the custom has adopted the Islamic prescription according to which

daughters should inherit half of their brothers' share. Instead, what we find is an evolving practice of transfers aimed at compensating women for their *de facto* exclusion from inheritance of a portion of their father's land. The same phenomenon has been actually observed in Niger where Cooper (1997) describes cases where women, in recognition of their ownership rights, receive part of the crop harvested on some portion of the family land by their brothers under an arrangement known as *aro* (p.78). This said, women's access to land often remains fragile and difficult to secure: owing to their absence from the native village following marriage, they find it typically difficult to exercise whichever rights over land might have been granted to them, all the more so as their male relatives are ready to exploit the situation (ibidem, p.81).

This inability to secure their rights on land explains why, in fieldwork, it is so difficult to obtain precise information about the extent of women's rights as well as about the amount and regularity of unilateral transfers received from their brothers. Another reason lies in the fact that male respondents are obviously embarrassed when their un-Islamic behaviour is pointed to them. This embarrassment reflects the potential impact of the formal law even when it is not actually followed. As is evident from the above story, such potential impact is manifested in the gradual transformation of the custom in a direction favourable to women. The ultimate cause of this transformation, we argue, is the emergence of valuable exit opportunities that have the effect of decreasing the cost of women's exclusion from the social game. To put it in another way, the expansion of education and non-agricultural employment opportunities for women provides them with new fall-back options that diminish the importance of traditional social protection mechanisms in the event that they fall under distress due to separation, widowhood, unwed motherhood, etc. In urban areas, another factor has the effect of increasing women's bargaining power. There, indeed, women's organizations often operate to defend women's rights by advocating legal reforms, raising awareness among women, and supporting their efforts to appeal to the formal law. In terms of our model, the work of these organizations causes a fall in the cost of appeal to the formal law (c^P) with the result that a growing proportion of women have recourse to the modern court to defend their rights, for example, their rights of inheritance.

In the Sahel, the gradual transformation of the custom regarding women's rights to initiate a divorce can be well understood in the light of the above discussion. In the initial situation, divorce was not readily granted to a wife wishing to leave her husband except in the case of proven mistreatment by the latter (Kevane, 2004; Platteau et al., 1999). Over recent years, however, women have progressively acquired a *de facto* right to leave an unhappy union. There are two main reasons. First, the severity of social sanctions against leaving an arranged marriage has diminished, to a large measure as a result of continued migration to neighbouring countries such as Côte d'Ivoire. Second, there is the effect of administrative pressure "as successive regimes continue to push for explicit legal rules and rights for women in marriage" (Kevane, 2004, p.75; see also Jewsiewicki, 1993). As pointed out by Hillhorst (2000), "A stronger legal status does not automatically afford women more independence but it may provide a strong bargaining position" (p. 195).

From a tribal area in India (Jharkhand) comes another story illustrating the capacity of the formal law to promote women's interests through evolution of the custom. There, a law known as the Santal Pargana Tenancy Act (1949) recognises women's inheritance rights through marriage to a resident son-in-law (*gharjawae*), but only in the absence of a male heir in the woman's family (Rao, 2007). This law was intended to protect such women against harassment and act of violence by male kin eager to appropriate the land which has fallen into their hands. Registering a *gharjawae* marriage with the authorities affords a woman an effective protection. Two lessons from this experience deserve special attention. First, as a consequence of the law, customary authorities (village elders) have modified the custom in a direction favourable to women. It is apparently because of prestige reasons - they want "to present themselves as fair and just"- that they have adopted a more pro-women stance. Second, the new law does not represent a radical departure from the existing practice, and this appears to be an important reason why it has had a real impact.¹¹ As a matter of fact, "the SPTA represented the *gharjawae* as an adopted son-in-law who inherits the land, rather than the daughter". It is thus far away from the Hindu Succession Act (1956) which provides equal inheritance rights to sons and daughters (pp. 310-311).

In rural areas subject to acute land pressure, such as in areas with good access to water and high population growth, the situation that obtains is often much less favourable to women than the one discussed above in the case of Sahelian countries. There, instead of improving exit opportunities for women, it is the scarcity-induced evolution of the custom in a direction contrary to their interests (in terms of our static model, the value of I moves closer to zero) which induces them to have recourse to the formal law. Scarcity of land assets tends, indeed, to undermine women's customary rights of access, making them more vulnerable, especially after the death of their husband. In Uganda, for example, the Federation of Women Lawyers (FIDA), reported that 40% of the cases they handled were related to the harassment of widows and property grabbing by their husbands' relatives (Bikaako and Ssenkumba, 2003, p. 250). In the Luwero and Torero areas, 29% out of a total of 204 widows indicated that property was taken from them following the death of their husbands. In Zambia, 41% of female-headed households with orphans indicated that they had lost all their cattle and 47% had lost all their pigs (cited from Joireman, 2007, pp. 20-21). In Niger, half of the women living in the city of Maradi and who inherited land from their fathers lost that land as a result of some action (sale or appropriation) by their brothers (Cooper, 1997, pp. 81- 82). As noted by S.F. Joireman, "if land is valuable, or a woman has property left by her husband that is viewed as valuable, she may find herself cast off with no land to farm and her household goods appropriated by members of the lineage" (ibidem; see also André and Platteau, 1998, and Verma, 2001, for evidence regarding Rwanda and Kenya,

¹¹Interestingly, the SPTA was actually inspired by a practice that evolved in the area itself. However, under conditions of growing scarcity of land, the practice of the *gharjawae* marriage was increasingly contested by male kin who tended to bend decisions of village elders in their favour. Thanks to the enactment of the SPTA and the registering procedure that it provides, this evolution of the custom in favour of men's interests has been counteracted.

respectively).¹²

These are obviously the most adverse conditions, likely to frustrate any attempt by the legislator to improve the women's lot. In fact, any statutory law in favour of women may then become unenforceable. Or, in terms of our dynamic model, the overcrowding of land and the ensuing social tensions and acrimony cause the benefits of the social game to diminish, rather than increase, as the community grows in size. As a result, the informal authority is less disciplined by the prospect of women moving out of the customary system.¹³

Women are not the only social group which can be considered as discriminated against under the customary system of land tenure in SubSaharan Africa. Immigrants form another such group whose rights turn out to be quite precarious when land pressure becomes acute (Platteau, 2000, Chap. 4). In the Côte d'Ivoire where such circumstances have sparked extreme tensions which degenerated into wild expulsion of foreign immigrants (mainly Burkinabé), the state eventually passed a law (Law N° 98-750, 23 December 1998) that declares lands cultivated by immigrants to be state land leased to them for a period of 99 years (Aka, 2007). Here is a vivid illustration of how the formal law can force customary practices to evolve in conditions where they are both inefficient (since immigrants are dynamic farmers) and inequitable. The Ivorian state was successful because it did not choose too radical a solution: stopping short of granting full private property rights to immigrants, it conferred upon them an ownership status (long-term use rights) that is more acceptable to village communities because it is part of a tradition inherited from colonial and post-independence times (bare ownership of rural lands is vested in the state). As a result, the situation was stabilised. In terms of our model, a more radical pro-immigrant law provision would have been less favourable to this vulnerable group owing to abrupt losses in the social game and its aversion to radical outcomes. It would have stirred up huge resentful and antagonistic feelings within the host rural communities. This question as to how radical a legislation ought to be to have significant effects is at the heart of all debates opposing reformists to revolutionaries. Just to quote a single example, toward the beginning of the 20th century, the reformist ulema Ibnou Zakri raised against the archaism of rural Islam in Kabylia, denouncing, in particular, the ignorance of the Islamic law of inheritance. Unlike other radical reformers, he was convinced that any change in the law has to be somehow approved by the customary authorities. In the case of Kabylia, this meant that the village *zawaya* (school-cum-local council) had to evolve so as to gradually accommodate a more progressive, and Islamic approach to women's rights (Chachoua, 2001, pp. 180-187). As it was standing, the *zawaya* was the "furnace of heresy." (p. 176).¹⁴

¹²In such situations, women are left with no other option than migrating to cities where they may try to engage in some (trade) business or prostitution and, if they are successful, they will end up purchasing a dwelling and perhaps some farmland as well (Cooper, 1997, pp.82-89).

¹³If we stick to our static model, however, since the equilibrium value of the customary verdict bends more toward men, women are encouraged to increasingly appeal to the modern law as land becomes more scarce.

¹⁴What we have offered above is obviously suggestive evidence rather than a rigorous test of the theory. In order to have a satisfactory empirical test, one would need to disentangle the influence of the modern law on the custom from other influences

5 Conclusion and final reflections

The impact of reforms brought through the channel of modern state agencies has always been a central issue in developing countries eager to transform their institutions and their people's behavioural patterns so as to effectively meet the pressing challenges of long-term economic growth. There are many well-known difficulties involved in a legalistic approach to change, in particular, people's ignorance of modern laws, manipulation of these by elites adept at using customary rules malevolently to acquire new, officially recognised rights, or the lack of credibility of the new rules and low trust in the state's enforcing ability. In this paper, we have pursued another line of inquiry that stresses the interaction between modern and customary rules. Assuming that people have a reasonably good knowledge about the written law and sufficient trust in its enforceability, the formal law, under certain conditions, may push the custom in the direction wished by the legislator. As a result, even if the modern law is not resorted to in an explicit manner, the simple fact that it exists and that people whose interests concur with its prescriptions can threaten to use it, might create a situation in which its objectives are partly met.

In our static framework, it must be stressed, the enacting of a new law, say as part of a land reform policy, may actually yield multiple outcomes. If the new law aims at advancing the interests of marginal sections discriminated against by the custom, (i) it may not be called for while the custom remains in force, unchanged; (ii) it may not be called for but the custom evolves in the direction pointed of by the modern law; and (iii) it may be invoked by the targeted beneficiaries who thereby escape the customary law. Whether one or the other of these outcomes obtains depends upon several factors foremost among which are litigation costs when using the formal court system, the cost of exclusion from community exchanges, the importance attached by customary authorities to keeping their people within the fold, the extent of unpredictability of the modern judge's verdict, and the gap between the formal law and the custom. In particular, a more radically pro-poor legislation increases the likelihood of outcome (iii) over (i) and (ii). When there is heterogeneity in the severity of disputes, the more severe the dispute the more likely it will end up being judged in the modern court. In addition, the fraction of disputes that are resolved in this manner is increasing in the distance between the statutory and the informal laws.

When a dynamic perspective is adopted and, in particular, we allow the poor to vary in terms of their outside options, a new pro-poor law will induce customary authorities to adapt the custom in the same direction, yet not enough to prevent the proportion of poor people going to the formal court from rising. Another key result is that, as inequality (in the distribution of these opportunities) grows, and assuming that the effect on the marginal person is negligible, the custom is expected to become less favourable to the

born of economic, demographic, and ecological changes (population growth and increased market integration, in particular). This is bound to be a difficult enterprise since it would require the occurrence of a legal shock unaccompanied by other changes potentially bearing upon the custom, and availability of relevant information about the pre- and post-shock situations.

poor and, as a result, the fraction of poor people opting out of the customary system increases. Illustrations provided in the field of land rights suggest that, together with exogenous forces emanating from the broad economic/ecological environment, factors corresponding to various parameters of the model seem, indeed, to play a major role in determining the evolution of customs and recourse to modern judges. Important factors that have led to a growing influence of the modern law, through induced evolution of the custom in a pro-poor direction and a rising occurrence of litigations cases in the formal court system, include (i) the falling cost of accessing the formal system thanks, in part, to the more active role of NGOs and civil society movements, and (ii) the expansion of outside opportunities, which has lowered the benefits of participating in community-based networks. Changes in the surrounding circumstances that result in increased competition for land have a different effect, however. They cause a regressive shift in the “preferred judgement” of the customary authority so that the beneficial effect of a pro-poor legislation may never occur because some key assumptions of our model are violated.

Looking at those instances in which the formal law aims to change an established order that discriminates against a particular section of the community (referred to as ‘the poor’ in our discussion), we are concerned with the effect of a statutory law on the welfare of these individuals. A legal reform which favours the poor has two distinct and opposing effects on their welfare. First, there is a positive effect related to the resolution of conflicts both within the formal and the informal systems. Second, there is a negative effect for those who remain in the community, related to the loss in the social exchange game due to the exclusion of the poor who resort to the formal legal system. If the marginal benefit of the social game is sufficiently sensitive to the size of the community and the poor are best served by an equitable resolution of conflicts, with little additional gain from a legal system that favours them in the extreme, then a moderate legal reform should dominate both the status quo and a radical reform.

Upon careful thinking, the fact that the custom remains quite alive in a region like SubSaharan Africa does not necessarily imply that the state is insufficiently strong. To the extent that the customary law evolves under the impact of changes occurring not only in the broad economic and ecological environment but also in the modern law, the state is not as ineffective as it appears, and there may be little gain from a stronger state that tries to impose radical legal reforms. The influence of the state follows a roundabout route, yet this is possibly a suitable path for institutional development in countries where the custom remains strong.

6 Appendix A

The case where the decision of the informal judge is applied immediately can be analysed as follows.

The timing of events in this case is as follow: (1) the institutions of the formal court are set; (2) P decides whether to bring the case to the formal court (F); if he chooses F , the community excludes him, the social

game without P is played, and the payoffs of all parties are determined; otherwise (3) R decides whether to bring the case to the formal court (F); if he chooses F , the community excludes him, the social game without R is played, and the payoffs of all parties are determined; otherwise (4) M chooses verdict v^M , the social game without exclusion is played and the payoffs of all parties are determined.

6.1 Equilibrium

In this case, if the agents decide not to go to the formal court, the informal judge has full control over the resolution of the dispute. We proceed by solving the game by backward induction.

Stage 4. Let both contenders accept to take the case to the informal judge. Then, clearly, M picks his preferred verdict $v^M = I$. This is due to the fact that at stage 4, the judge has full discretion over the verdict. It follows that his decision cannot be influenced by the existence of a formal law system.

Stage 3. Under M 's preferred verdict, R gets the payoff equal to

$$u^R(1 - I) + Q(A) - C^R(A).$$

She compares this to the payoff obtained from making recourse to the formal court:

$$Eu^R(1 - v^F) - c^R.$$

Thus, R brings the case to the formal court iff

$$Eu^R(1 - v^F) - c^R \geq u^R(1 - I) + Q(A) - C^R(A).$$

In other words, R forsakes her right to go to the formal court whenever $I < \bar{I}$, where \bar{I} is pinned down by the equation:

$$Eu^R(1 - v^F) - c^R = u^R(1 - \bar{I}) + Q(A) - C^R(A). \quad (20)$$

Stage 2. Suppose $I < \bar{I}$. Then, under M 's preferred verdict, P gets the payoff equal to

$$u^P(I) + Q(A) - C^P(A).$$

She compares this to her payoff in the case of making recourse to the formal court:

$$Eu^P(v^F) - c^P.$$

Thus, P accepts the verdict of M whenever $I > \underline{I}$, where \underline{I} is pinned down by the equation:

$$Eu^P(v^F) - c^P = u^P(\underline{I}) + Q(A) - C^P(A). \quad (21)$$

Thus, the preferred verdict of M is the equilibrium outcome of the game iff $I \in (\underline{I}, \bar{I})$. More generally, the equilibrium of the game is:

- I , if $I \in (\underline{I}, \bar{I})$. The payoff of the judge is $u^M(I) = X + Q(A) - C^M(A)$. The payoff of the rich is $u^R(1 - I) + Q(A) - C^R(A)$. The payoff of the poor is $u^P(I) + Q(A) - C^P(A)$.
- v^F , if $I \leq \underline{I}$. The payoff of the judge is $Q(A_P) - C^M(A_P)$. The payoff of the rich is $Eu^R(1 - v^F) + Q(A_P) - C^R(A_P)$. The payoff of the poor is $Eu^P(v^F) - c^P$.
- v^F , if $I \geq \bar{I}$. The payoff of the judge is $Q(A_R) - C^M(A_R)$. The payoff of the rich is $Eu^R(1 - v^F) - c^R$. The payoff of the poor is $Eu^P(v^F) + Q(A_R) - C^P(A_R)$.

6.2 Comparative Statics

The bounds \underline{I} and \bar{I} are described in exactly the same way as in section 2.4. Therefore the comparative statics results described in Proposition 1 also apply to the equilibrium described above, for the case where the decision of the informal judge is immediately put into effect.

7 Appendix B

The proofs of propositions 1 - 5 are provided here.

Proof. of Proposition 1: The threshold condition (1) can be written as:

$$u^R(1 - \bar{I}) = Eu^R(1 - v^F) - c^R - Q(A) + C^R(A) \equiv \Phi^R,$$

thus, $\Phi^R(f, \phi, c^R, Q(A), C^R(A))$ denotes the reservation utility of the rich. Clearly, it is decreasing in f (average formal-law verdict), and, by concavity of the utility function, increases with ϕ (precision of the formal verdict). Moreover, it decreases in the net benefit of the rich from the cohesive production (decreases in $Q(A)$ and increases in $C^R(A)$) and decreases in the administrative cost of accessing the formal court (c^R). Given this, and the fact that

$$\frac{d\bar{I}}{d\Phi^R} < 0,$$

the threshold identity (for the rich) of the informal judge is

$$\bar{I}(f, \phi, c^R, Q(A), C^R(A)).$$

Similarly, rewriting (2) as

$$u^P(\underline{I}) = Eu^P(v^F) - c^P - Q(A) + C^P(A) \equiv \Phi^P,$$

and observing that the expected outside option of the poor, Φ^P , increases in f, ϕ , and $C^P(A)$, and decreases in c^P and $Q(A)$, we get that the threshold identity (for the poor) of the informal judge is

$$\underline{I}(f, \phi, c^P, Q(A), C^P(A)).$$

■

Proof. of Proposition 2: Rewrite (3) as

$$g(\bar{v} - I) = X + Q(A) - C^M(A) - Q(A_P) + C^M(A_P) \equiv \Pi^P,$$

where Π^P denotes the maximum loss that the judge biased against the poor is ready to accept, before letting the case go to the formal court. Thus maximum loss clearly increases in the judge's direct payoff from the case (X), the benefit from the cohesive production of the community public good ($Q(A)$), and the contribution of the judge to the public good when the poor is excluded ($C^M(A_P)$). The maximum loss decreases in the contribution of the judge to the public good under cohesive production ($C^M(A)$) and the benefit from the public good under the exclusion of the poor ($Q(A_P)$). Since

$$\frac{d\bar{v}}{d\Pi^P} > 0,$$

the judge's threshold verdict \bar{v} carries through all the above comparative statics signs:

$$\bar{v}(X^+, Q^+(A), C^{M-}(A), Q^-(A_P), C^{M+}(A_P)).$$

Following the same reasoning, we can show the judge's threshold verdict \underline{v} carries the following signs:

$$\underline{v}(X^-, Q^-(A), C^{M+}(A), Q^+(A_R), C^{M-}(A_R)).$$

■

Proof. of Proposition 3: (i) Differentiating throughout (5) and (6) w.r.t. γ and rearranging, we obtain

$$\begin{aligned} \frac{\partial \bar{I}}{\partial \gamma} &= -\frac{c^R}{\gamma^2} \times \frac{1}{u^{R'}(1-\bar{I})} < 0 \\ \frac{\partial \underline{I}}{\partial \gamma} &= \frac{c^P}{\gamma^2} \times \frac{1}{u^{P'}(\underline{I})} > 0 \end{aligned}$$

Therefore, $\bar{I}(f, \gamma)$ is decreasing in γ and $\underline{I}(f, \gamma)$ is increasing in γ .

(ii) Differentiating throughout (7) and (8) w.r.t. f and rearranging, we obtain

$$\begin{aligned} \gamma'(f) &= -\frac{\partial \bar{I}}{\partial f} / \frac{\partial \bar{I}}{\partial \gamma} \text{ if } f < I \\ \gamma'(f) &= -\frac{\partial \underline{I}}{\partial f} / \frac{\partial \underline{I}}{\partial \gamma} \text{ if } f > I \end{aligned}$$

Then we can determine the sign of the expression $\frac{\partial}{\partial |f-I|} \gamma(f)$ as follows. If $f < I$ ¹⁵, then

$$\begin{aligned} \frac{\partial}{\partial |f-I|} \gamma(f) &= -\frac{\partial}{\partial f} \gamma(f) \\ &= -\frac{\partial \bar{I}}{\partial f} / \left[\frac{c^R}{\gamma^2} \times \frac{1}{u^{R'}(1-\bar{I})} \right] < 0 \end{aligned}$$

¹⁵Since the formal law is more favourable to the rich individuals than the informal law, they are the critical agents whose decision matters for the informal judge.

If $f > I$, then

$$\begin{aligned}\frac{\partial}{\partial|f-I|}\gamma(f) &= \frac{\partial}{\partial f}\gamma(f) \\ &= -\frac{\partial I}{\partial f} / \left[\frac{c^P}{\gamma^2} \times \frac{1}{u^P(I)} \right] < 0\end{aligned}$$

Thus, $\frac{\partial}{\partial|f-I|}\gamma(f) < 0$. Since a fraction $1 - G(\gamma(f))$ of cases reach the formal court, the fraction of cases reaching the formal court is increasing in the distance between the formal law and the custom. ■

Proof. of Proposition 4: (i) & (ii) To obtain these comparative statics results, we shall use Topkis' theorem (Topkis 1978). Taking the derivative with respect to v throughout the maximand in (11), we obtain

$$X'(n^*(v)) \frac{f(\omega) u'(v)}{1 - f(\omega) Y'(n^*)} - g'(v - I) \quad (22)$$

To use Topkis' theorem, we would need to know how the expression in (22) changes with the parameter of interest. From (9), we see that the threshold value of the outside option \bar{w} is increasing in c^P . Using (10), we obtain

$$\frac{\partial n^*}{\partial c^P} = \frac{f(\omega)}{1 - f(\omega) Y'(n)} > 0$$

Therefore, since $X''(\cdot) < 0$, $Y''(\cdot) < 0$ and $f'(\cdot) < 0$, the expression in (22) is decreasing in c^P . Then, using Topkis' theorem, v^{M*} is decreasing in c^P .

Similarly, from (9), we see that \bar{w} is decreasing in f and ϕ . Using (10), we obtain $\frac{\partial n^*}{\partial f} > 0$, $\frac{\partial n^*}{\partial \phi} > 0$. Then, using Topkis' theorem, v^{M*} is decreasing in f and ϕ .

(iii) & (iv) To obtain the comparative statics results involving the steady-state community size n^* , we first define

$$v(n) = \min \left\{ v : H(n, v) \equiv \frac{n}{N} \right\} \quad (23)$$

That is, v is the least-costly verdict for the informal judge (when the formal law favours the poor) that leads to a steady-state community size of n . Then, it is straightforward to establish that the solution to the maximisation problem in (11) corresponds to the one below¹⁶:

$$n^* = \arg \max_n X(n) - g(v(n) - I) \quad (24)$$

Therefore, for comparative statics analysis involving n^* , it suffices to consider the problem in (24). Taking the derivative w.r.t to n throughout the maximand in (24), we obtain

$$X'(n) - g'(v(n) - I) v'(n) \quad (25)$$

¹⁶To see this, note that the function $v(n)$ defines a monotonic relationship between v and n and $v^{-1}(\cdot) = n(\cdot)$. Therefore, if $n = n^*(v^{M*})$, where v^{M*} , as defined in (11), does not solve the optimisation problem in (24), there is an alternate value of v given by $v(n^*)$ at which the maximand in (11) attains a higher value than at v^{M*} . This would contradict the definition of v^{M*} . Therefore, the solutions of the two maximisation problems must coincide.

To apply Topkis' theorem, we need to determine how this expression changes with each of the parameters of interest, c^P , f and ϕ . First, we consider the case of c^P . Taking the derivative w.r.t. c^P throughout (25) and using notation to make explicit the dependence of $v(\cdot)$ on c^P , we obtain

$$-g''(v(n, c^P) - I) \frac{\partial v}{\partial n} \frac{\partial v}{\partial c^P} - g'(v(n) - I) \frac{\partial^2 v}{\partial n \partial c^P} \quad (26)$$

To determine the sign of this expression, we need to know the signs of $\frac{\partial v}{\partial n}$, $\frac{\partial v}{\partial c^P}$ and $\frac{\partial^2 v}{\partial n \partial c^P}$. Substituting for $H(\cdot)$ in (23), we have

$$v(n, c^P) = \min \left\{ v : F(\bar{\omega}(n, v(n, c^P), c^P)) = \frac{n}{N} \right\}$$

Taking the derivative w.r.t c^P throughout the expression on the right-hand side, we obtain

$$f(\bar{\omega}(\cdot)) \left[\frac{\partial \bar{\omega}}{\partial v} \frac{\partial v}{\partial c^P} + \frac{\partial \bar{\omega}}{\partial c^P} \right] = 0$$

Using the fact that $f(\bar{\omega}(\cdot)) > 0$ and substituting for $\frac{\partial \bar{\omega}}{\partial v}$ and $\frac{\partial \bar{\omega}}{\partial c^P}$, we obtain

$$\frac{\partial v(\cdot)}{\partial c^P} = -\frac{1}{u'(v)} < 0$$

Similarly, we obtain (using the normalisation $N = 1$),

$$\frac{\partial v}{\partial n} = \frac{1}{u'(v)} \left\{ \frac{1}{f(\bar{\omega}(n, v(n, c^P), c^P))} - Y'(n) \right\}$$

Note that if the steady-state is attained for some $n = n^*$, we must have $1 - f(\bar{\omega}(\cdot)) Y'(n) > 0^{17}$. Therefore $\frac{\partial v}{\partial n} > 0$. Then, since $g'(\cdot) > 0$, $g''(\cdot) > 0$, the expression in (26) is positive. Therefore, applying Topkis' theorem, we obtain the result that n^* is increasing in c^P . Using similar reasoning, we can show that n^* is decreasing in f and ϕ . ■

Proof. of Proposition 5: Let v_1 , \tilde{v}_2 and v_2 be the optimal choice of law for the informal judge for the distributions $F_1(\cdot)$, $\tilde{F}_2(\cdot)$ and $F_2(\cdot)$ respectively. Let $n_1^*(v)$, $\tilde{n}_2^*(v)$ and $n_2^*(v)$ be the corresponding steady-state size of the population when the custom is described by v . Using the definition of v_1 , we have

$$X'(n_1^*(v_1)) \frac{F_1'(\bar{\omega}(n_1^*(v_1), v_1)) u'(v_1)}{1 - F_1(\bar{\omega}(n_1^*(v_1), v_1)) Y'(n_1^*(v_1))} + g'(v_1 - I) = 0 \quad (27)$$

Since, by construction, the curve $\tilde{F}_2(\bar{\omega}(n, v_1))$ crosses the 45-degree line at $n_1^*(v_1)$, we have $\tilde{n}_2^*(v_1) = n_1^*(v_1)$. Furthermore, we have $\tilde{F}_2'(\bar{\omega}(\tilde{n}_2^*(v_1), v_1)) = \tilde{F}_2'(\bar{\omega}(n_1^*(v_1), v_1)) < F_1'(\bar{\omega}(n_1^*(v_1), v_1))$. Hence, we obtain

$$X'(\tilde{n}_2^*(v_1)) \frac{\tilde{F}_2'(\bar{\omega}(\tilde{n}_2^*(v_1), v_1)) u'(v_1)}{1 - \tilde{F}_2(\bar{\omega}(\tilde{n}_2^*(v_1), v_1)) Y'(\tilde{n}_2^*(v_1))} + g'(v_1 - I) < 0 \quad (28)$$

¹⁷The reason is as follows. By definition, for all n above the steady-state value n^* , the curve $H(n, v)$ lies below the 45-degree line. Therefore, $\frac{d}{dn} H(n, v)|_{n=n^*} < 1$. Since $\frac{d}{dn} H(n, v) = f(\bar{\omega}(\cdot)) Y'(n)$, we obtain

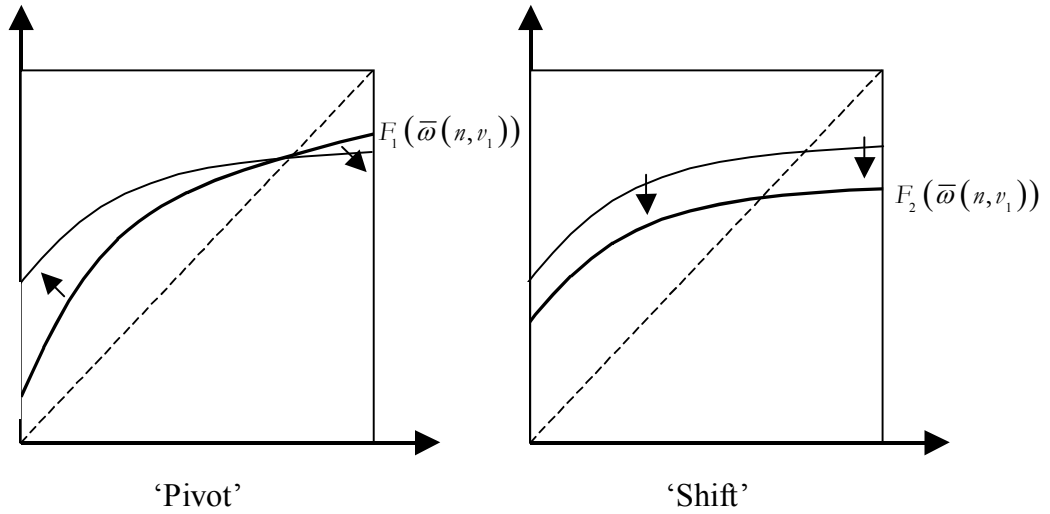
$$1 - f(\bar{\omega}(\cdot)) Y'(n)|_{n=n^*} > 0$$

Then, since the maximand for the informal judge's problem is globally concave, the first-order condition, when the distribution $\tilde{F}_2(\cdot)$ is used, is satisfied with equality at some $\tilde{v}_2 < v_1$. Then, since $\tilde{n}_2^*(v)$ is increasing in v , we must have $\tilde{n}_2^*(v_2) < \tilde{n}_2^*(v_1) = n_1^*(v_1)$.

Let $\tilde{c}^P = c^P + \eta$. Define $\tilde{\omega}(n, v^M)$ as the value of the outside option that satisfies the condition (9) with equality using cost \tilde{c}^P instead of c^P . Then it is clear that the expressions $F_2(\tilde{\omega}(n, v^M))$ and $\tilde{F}_2(\tilde{\omega}(n, v^M))$ are identical. Therefore, for the optimisation problem of the informal judge, replacing the distribution $F_2(\cdot)$ by $\tilde{F}_2(\cdot)$ is equivalent to replacing the cost c^P by \tilde{c}^P . If $\eta < 0$, then by construction, the marginal person in the initial steady-state loses in the redistribution. Then $c^P > \tilde{c}^P$ and, using Proposition 4, an increase in the cost from \tilde{c}^P to c^P leads to a decrease in the optimal choice of custom for the informal judge and an increase in the steady-state size of the community. Therefore, $v_2 < \tilde{v}_2, n_2^*(v_2) > \tilde{n}_2^*(\tilde{v}_2)$. Conversely, if $\eta > 0$, the marginal person gains in the redistribution. Then, $\tilde{c}^P > c^P$ and, by Proposition 4, $v_2 > \tilde{v}_2, n_2^*(v_2) < \tilde{n}_2^*(\tilde{v}_2)$.

■

8 Appendix C



9 Appendix D

In this appendix, we investigate the behaviour of a forward-looking individual in the community, within the context of the dynamic model presented in section 3. Consider a poor individual with outside option ω who

faces a dispute in the current period. Suppose that the custom provides a higher current utility than exiting the community. That is,

$$Y(n) + u(v^M) \geq \omega + Eu(v^F) - c^P$$

Then, like the myopic agent, the forward-looking agent would choose to remain in the community. That is because he can enjoy the current benefits of remaining in the community today and opt out a later date if he finds it advantageous to do so.

Now suppose that the custom provides a lower current utility than exiting the community:

$$Y(n) + u(v^M) < \omega + Eu(v^F) - c^P \quad (29)$$

The size of the community can only decrease over time, because community members can exit while no new members can join in. Therefore, the expected per-period utility in future periods from remaining in the community can be no larger than $Y(n) + \delta u(v^M)$, where δ is the probability of being embroiled in a dispute in any future period. On the other hand, the expected per-period utility in future periods from leaving the community equals $\omega + \delta [Eu(v^F) - c^P]$. For δ sufficiently close to 1, the condition in (29) implies that

$$Y(n) + \delta u(v^M) < \omega + \delta [Eu(v^F) - c^P] \quad (30)$$

In this case, the forward-looking agent would leave the community whenever the formal legal system provides a higher payoff in the current period than the custom. Combining the two results above, we conclude that a forward-looking agent would behave exactly the same as a myopic agent for δ close to 1.

The remaining case we need to investigate is where (29) holds but δ is sufficiently low such that (30) is violated. This implies, in particular that $Y(n) > \omega$. Then an individual with outside option ω may choose to remain in the community in the current period because of the benefits of the social exchange game. Clearly, raising ω increases the expected utility from exiting the community both in the current period and in the future. Therefore, we can identify a threshold level of outside option $\omega_{fl}(n, v^M)$ at which a forward-looking individual would be indifferent between appealing to the formal court in the current period and following the custom. Given, the reasoning above, we have $\omega_{fl}(n, v^M) > \omega(n, v^M)$. Raising n or v^M increases the expected utility from remaining with the community both in the current period and in the future. Therefore, $\omega_{fl}(n, v^M)$ is increasing in both n and v^M .

In summary, for δ sufficiently close to 1, the threshold value at which the forward-looking agent leaves the community is the same as that for the myopic agent. For δ small, the threshold value for the forward-looking agent is higher than that for the myopic agent. In either case, the threshold value is increasing in n and v^M . Therefore, the equilibria we obtain for forward-looking agents is qualitatively similar to that obtained for myopic agents.

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