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# Using the Law to Change the Custom

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## Abstract

We build a simple model of legal dualism in which a pro-poor legal reform, 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, its mere existence might create a situation in which its objectives are partly met. We illustrate this insight using examples on inheritance, marriage, and divorce issues in Sub-Saharan Africa and India. We also characterize the conditions under which a moderate pro-poor reform is more effective than a radical reform.

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 interacts with the custom is a key issue in most developing countries. The concept of legal pluralism that is used to study such contexts refers, in its most general meaning, to a situation of coexistence of several law systems (Merry 1988, Griffiths 1986). In a more restrictive sense, it means the simultaneous existence of a formal legal system of statutory laws with customary principles or informal rules. The formal law may have as its objective 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 considered as temporary, substituting the formal for the informal law has two distinct rationales. In the first rationale, the formal law serves the purpose of codifying and making uniform the existing customary rules and practices. In such circumstances, informal rules appear to be “the foundations on which formal rules are built” (Knight 1992: 172, North 1990). In the second rationale, the formal law aims at bringing a change that the custom inhibits. The formal and the informal laws are then in conflict.

Several problems arise when legal pluralism is intended to be temporary. First, there is an uncertainty about which legal system - the formal one or the custom - applies in a particular context. As pointed out by Knight (1992), the enactment of a new formal law alters the information about the equilibrium that the rule seeks to produce and lays down sanctions against behavior 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 various reasons why actors might not believe that the formal law will be used. The expectations formed in the past may be too persistent to give way to new ones. The new rule may be ambiguous, being subject to multiple interpretations that are sorted out through the experience of time (Cooter 1991: 773). Finally, there is uncertainty whether the sanctions under the new rule will actually be enforced (Knight 1992: 185-186, Fafchamps 2004: 29-30).

When the change in expectations does not take place because of these reasons, customary rules tend to persist and formal laws destined to replace them remain ‘dead letter’. In the institutions-as-equilibria paradigm, the new law is not recognized 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: 13, Greif 2006: 3-53, Basu 2000: 111-15).<sup>1</sup> For instance, laws which have been enacted in Sub-Saharan Africa with the aim of preventing excessive fragmentation of

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<sup>1</sup>Note 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 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).

rural lands— whether through inheritance or through land sale transactions— have never been enforced. This is caused not so much by people’s ignorance of the law as by 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., the Ivory Coast, Gabon, Central African Republic), people continue to follow the custom thus ignoring this law (Ntampaka 2004: 128-30). In Peru, the new water law ("*ley del agua*") that prescribes fee payments by users of irrigation water meets fierce opposition from members of Andean communities. According to a deeply entrenched custom, water is a communal good that should remain free.<sup>2</sup>

An alternative problem, typical in societies strongly differentiated in terms of wealth and status, is that the rich generally try to use their leverage or informational advantage to manoeuvre multiple legal frameworks for their own benefit (Moore 1978). A striking example of this manipulation 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 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: 60-73, Glazier 1985: 231, Barrows and Roth 1989: 8, Berry 1993, Platteau 2000: 165-68, Jacoby and Minten, forthcoming).

The general view that emerges from the literature on legal pluralism is thus rather pessimistic: except in cases where the statutory law is grounded in customary rules, legal pluralism tends to produce neutral or negative effects (Chanock 1985, Lund 1996, 1998, Lund and Hesseling 1999, Mackenzie 1996). In this paper, we challenge this view and try to establish the conditions under which legal pluralism and reform in formal law produce positive effects. We study the context in which certain laws are competing with the custom. More precisely, the legislator aims at improving the lot of vulnerable sections of the population whose interests are harmed by the custom (e.g. lower castes in India or women in strongly patriarchal societies). In such a setting, we argue that legal pluralism can potentially be beneficial because the enactment of the modern law might drive the informal rule to evolve in the desired direction. Thus, even though the formal law is not resorted to explicitly, its mere existence might create a situation in which its objectives are partly met. The domain of applicability of our setting is significant: it includes all matters related to land allocation decisions, marriage, divorce, inheritance, etc.

>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 behavior and welfare. An immediate implication is that legal pluralism may persist for a long time despite the legislator’s intention of displacing informal rules and customs. The ability

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<sup>2</sup>Examples can be extended to non-state agencies as well. When non-government organisations (NGOs) prescribe rules according to which land plots which they have improved for irrigation should be earmarked for women, invariably a significant portion of this land ends up being used by men.

of the latter rules to adapt under the constraint of a new legal framework is the critical factor explaining why legal pluralism may endure.

This analytical perspective enables us to account for an observation frequently made by social scientists outside economics: customary rules, far from being the static and rigid outcomes that economists tend to depict as stable (Nash) equilibria, in reality are continuously evolving. Moreover, several scholars have stressed that the 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 particular section(s) of the population. For instance, the anthropologist Lavigne Delville says 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: 114). Rao (2007) states 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: 312). What these empirical statements imply is that both claimants and informal judges believe that the formal law - if resorted to - will be enforced. Otherwise, it would not have the effect of strengthening the bargaining power of the people disadvantaged by the custom.

Scholars concerned with micro-institutional problems in poor countries in which the custom is strong often point out that solutions imposed by legislative fiat tend to have dismal results because they inevitably create misunderstandings, uncertainty and disputes. Reforming customary rules by allowing them to evolve and modernize themselves through the common law process – so that the law assimilates custom through court decisions rather than through acts of the Parliament – appears as a much more effective path of institutional change (Cooter 1991).<sup>3</sup> The central argument underlying our analysis implies an agreement with the idea that imposing rules by fiat in societies traditionally ruled by the custom is often counter-productive. Yet, at the same time, it suggests that enactment of new statutory laws that remain optional when they compete with the custom may, under some conditions, prompt desirable changes.

## 1.2 Review of the Literature

Apart from the social science sources cited above, some related questions have been studied in the law and economics literature. However, the existing literature of the economic analysis of law (see Posner 1998 and Cooter and Ulen 2004 for reviews) so far has not devoted much attention to the evolution of customary law induced by the introduction or changes in formal law.<sup>4</sup> This gap exists for two reasons. On one hand, the

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<sup>3</sup>Thus, in the case of Papua New Guinea, Robert Cooter explains, the Land Disputes Settlement Act has provided a legal ground and a system of mediators and courts to resolve disputes involving land under customary ownership. The crucial point is that the land courts are bound only by the above act and custom. What Cooter argues is that the evolution of court-made property law is driven by this system because “land disputes requiring the refinement of property rights reach the courts with sufficient frequency to support the common law process”. One of the most challenging tasks facing the land courts is to find general principles behind the diversity of local customary practice and usage, and to make explicit authoritative statements on that basis (Cooter 1991: 781-799).

<sup>4</sup>There are analyses of the evolution of the formal common law. Gennaioli and Shleifer (2007) study how the evolution of the lawmaking by policy-motivated judges leads, because of the “washing away” of their biases, to the efficient outcome. There

current economic analysis of customary law (see Parisi 1998 for an excellent brief survey) 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 latter two 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 arbitra-  

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are no similar studies, to our best knowledge, concerning the informal rules.

tion 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 the context of developing countries.

Finally, a key issue in the case of developing countries is the role of inequality in outside options. 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 examined. 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? This question which is at the heart of the debate opposing reformists to revolutionaries in situations calling for social change will be placed at the centre of the analysis offered in this paper. We characterize the conditions under which a moderate law better promotes the interests of the poor than a radical law.

### **1.3 Structure of the paper**

The remainder of the paper is organized as follows. In Section 2, we present a simple model of legal dualism with two legal systems: 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. We distinguish 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. Poor individuals are heterogeneous so that, in equilibrium, a fraction of the poor group makes 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, and deriving the comparative statics results (subsection 2.4), we study the welfare implications for the poor of a more or less radical pro-poor formal law (subsection 2.5) and the effect of inequality (among the poor) on the informal law (subsection 2.6). We establish under which conditions too radical a pro-poor legislation may be less favorable to the poor than a more moderate one.

Section 3 presents a number of examples illustrating how changes in various key parameters of the model affect the manner in which conflicts are resolved in several traditional societies. These examples draw from the literature on women's rights and land tenure, particularly in the context of Sub-Saharan Africa and India. Section 4 concludes.

## 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 influential 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 the production of a community-level public good, while, if one of them appeals to the formal court, (s)he is excluded from the benefits of this good. Thus, each non-excluded player contributes to the production of the community-level public good and benefits from it.

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 (and perhaps more compelling) reason is suggested by a growing literature coming from the 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 an emotive reaction of 'vengefulness' (Axelrod 1997, Chap. 3, 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 neighbors and kin" (Bates 2001: 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 Sub-Saharan 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 depicted above. Note that legal pluralism in this 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 unfavorable to women and the statutory law, which tends towards giving equal recognition to women's rights, is the most favorable (the Islamic law is somewhere 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: 187).<sup>5</sup> Uncertainty clearly is present in such a situation since it is rather easy for claimants to distort information regarding their "mode of life" or the intent of the deceased. Yet, disagreement about the latter may also 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 (based on Verse 12 of Sourate IV of the Quran). Clearly, the plaintiff could have hoped to get a full share while the defendant could have expected her to be rebuked in the name

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<sup>5</sup>In 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 Rasel Madaha).

of the custom. In Senegal, like in Mali, the lawmakers have explicitly allowed the Muslim law to be invoked in matters of inheritance because they have realized that the French-inspired statutory law is too distant from the customary law to offer a realistic alternative to it (Ntampaka 2004: 153-67).

Third, even in cases where there is a unique body of statutory laws, interpretation problems may create an uncertainty. This point is much emphasized in the literature and is known in the legal profession as the 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 favorable 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).<sup>6</sup>

### 2.3 Setup of the model

Imagine a community composed of two groups of individuals labelled  $A$  (the rich) and  $B$  (the poor). The two groups have opposing interests and are unequally represented by the custom. At each point in time, an individual becomes involved in a dispute with a member of the other group with probability  $\delta$ . For simplicity, we assume that the probability of becoming embroiled in two disputes simultaneously is negligibly small.

Whenever a dispute occurs, it is first taken for mediation to a local authority whom we refer to as the ‘informal judge’ or ‘mediator’. After the mediator has made his ruling, either party may appeal the verdict in a formal court of law. If the dispute reaches the formal court, then its ruling overrides that of the local authority. However, as attested by field observations conducted by one of us (J. P. Platteau) in rural West Africa (Senegal and Mali in particular), the individual who appealed to the formal court is excluded thereafter from the community. This timing realistically describes typical situations in developing countries with dual legal systems, particularly in Sub-Saharan Africa.

Formally, we have an infinite horizon game with the following timing of events within each period: (i) first, the informal judge declares a ‘custom’,  $v^M$ ; (ii) disputes emerge in the community, each involving one individual from group  $A$  and another from group  $B$ ; (iii) each dispute is first addressed by the informal judge who is constrained to give a verdict that corresponds to the ‘custom’ announced at the beginning of

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<sup>6</sup>One could alternatively think 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 practices before making his 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 often 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.

the period; (iv) either disputant in a case decides simultaneously whether to appeal the initial verdict at the formal court; (v) if a dispute reaches the formal court, then its ruling  $v^F$  overrides that of the informal judge; (vi) an individual who has appealed to the formal court is excluded from the community and receives a utility corresponding to his outside option thereafter; the remaining members participate in the production of a community-level public good.

The requirement that a ‘custom’ must be announced at the beginning of each period ensures that all cases brought to the informal judge in a single period are dealt with in a consistent manner. This requirement seems reasonable given that a mediator who gives a different ruling to two cases, that are brought to him at the same time and are exactly alike, is likely to lose credibility with both sections of the community, and may well lose his position of authority in consequence.

Although we assume that the two disputants simultaneously choose whether or not to appeal a verdict of the informal judge in the formal court (stage iv above), the game is essentially unchanged if they make their respective decisions sequentially. This is because the interests of the two disputants are perfectly opposed, so that only one of them may have an incentive to appeal to the formal court following any specific verdict by the mediator.

We represent the range of possible outcomes of a case by the interval  $[0, 1]$ , where an outcome of 0 is most favorable to  $A$  and 1 is most favorable to  $B$ . This interval is also the set of possible values for the custom chosen by the informal judge at stage (i) and for the verdicts given at stage (iii) within each period.

The informal judge has a preferred custom,  $I \in [0, 1]$ . In each period that he declares a custom  $v^M$  that differs from his ‘ideal’, he incurs a disutility of  $g(v^M - I)$  where  $g(0) = 0$  and  $g(x) > 0$  for  $x \geq 0$ . We assume that the cost function  $g$  is convex:  $g'' > 0$ . On the other hand, he receives ‘prestige-related’ utility  $X(n)$  that depends on the current size of the community. We assume that  $X' > 0$ , i.e. the utility that he derives from the prestige associated with his position is increasing in the size of the community. For ease of exposition (and without substantial loss of generality), we assume hereafter that the preferences of the informal judge are perfectly aligned with those of individuals in group  $A$ ; i.e.  $I = 0$ . This assumption implies that only individuals within group  $B$ , who belong to socially marginal categories of the population, would have an incentive to contest the decision of the informal judge in the formal court following any dispute.

The population is heterogenous in terms of their outside options. In particular, the distribution of outside options within group  $B$  is described by a cumulative distribution function  $H(\cdot)$  such that the fraction of group- $B$  individuals with per-period outside option below  $\omega$  equals  $H(\omega)$  (it is unnecessary to describe the outside options of group  $A$  individuals as they never have an interest in exiting the community when  $I = 0$ ).

In each period, being part of the community yields a utility of  $Y(n)$  to each participant, where  $n$  is the current size of the community. We assume  $Y' > 0$ ; i.e. the individual benefit derived from the community-level public good is increasing in the number of participants.

Given the uncertainty in the formal legal system, the ruling in the formal court is described by a stochastic variable  $v^F = f + \tilde{\theta}$  where  $f \in (0, 1)$ ,  $E\tilde{\theta} = 0$  and  $Var(\tilde{\theta}) = \frac{1}{\phi^2}$ <sup>7</sup>. Thus, a higher value of  $\phi$  indicates a lower variance of the verdict.

The preferences over possible verdicts are given by  $u^A(1 - v)$  for a type-*A* individual and by  $u^B(v)$  for a type-*B* individual and  $u^A(\cdot)$  and  $u^B(\cdot)$  are increasing and concave. The concavity of the function ensures that the individuals are averse to the uncertainty of the verdict in the formal court. In addition, there is a (transaction) cost, represented by  $c$  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 which includes 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.

In summary, we can represent the per-period utility level of each agent as follows. If the declared custom is  $v^M$  and the current size of the community is  $n$ , then

- the informal judge receives utility equal to

$$X(n) - g(v^M);$$

- a type-*B* individual involved in a dispute in the current period, who accepts the verdict of the informal judge, receives

$$u^B(v^M) + Y(n);$$

- a type-*B* individual with outside option  $\omega$  who appeals the decision of the informal judge at the formal court and is expelled from the community in consequence receives

$$Eu^B(v^F) + \omega - c.$$

We shall assume for the main analysis that the disputants make the decision whether or not to appeal a verdict of the informal judge myopically; that is, they take into consideration the benefits and costs of their choice in the current period only (we show in Appendix B that the outcome is not qualitatively different when they also take into account the loss of future benefits from leaving the community). Assuming that people do not coordinate their decision to exit the community, given a custom  $v^M$ , a type-*B* myopic agent with outside option  $\omega$  would choose to have the case settled in the informal court if and only if

$$Y(n) + u(v^M) \geq \omega + Eu(v^F) - c. \tag{1}$$

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<sup>7</sup>We assume that the constant  $f$  and the random variable  $\tilde{\theta}$  are such that the support of  $v^F$  falls within the interval  $[0, 1]$ .

Given  $n$  and  $v^M$ , we obtain a threshold value  $\bar{\omega}(n, v^M)$  at which the condition in (1) is satisfied with equality. In other words, a person with outside option  $\bar{\omega}(n, v^M, \Lambda)$  is indifferent between choosing the informal and the formal court to resolve a dispute, where  $\Lambda = (c, f, \phi)$  is the 3-tuple of parameters that describe the formal legal system. Correspondingly, the expression  $H(\bar{\omega}(n, v^M, \Lambda))$  is the fraction of individuals of type  $B$  who are willing to have a dispute resolved within the customary system when the community size is  $n$  and the declared custom is  $v^M$ .

For the ease of notation, we normalize the initial size of the community to 1. Denote by  $n^{ss}(v^M, \Lambda)$  the largest value of  $n \leq 1$  at which  $H(\bar{\omega}(n, v^M, \Lambda)) = n$ . That is,

$$n^{ss}(v^M, \Lambda) = \max \{n : H(\bar{\omega}(n, v^M, \Lambda)) = n\} \quad (2)$$

In other words,  $n^{ss}(v^M, \Lambda)$  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. If  $n^{ss}(v^M, \Lambda) < 1$ , 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  $n^{ss}(v^M, \Lambda)$ . At this stage, the community will consist only of individuals with outside options below  $\bar{\omega}(n^{ss}(v^M, \Lambda), v^M)$  who, by definition, will choose to resolve their disputes in the informal court. On the other hand, if  $n^{ss}(v^M, \Lambda) = 1$ , 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 the *steady-state*.

It is useful to represent the steady-state graphically (we suppress some of the notation for legibility). Figure 1 plots the function  $H(\bar{\omega}(n, v))$  against  $n$  for some given distribution  $H(\cdot)$ , and custom  $v$ . For this example, we have assumed that  $H(\bar{\omega}(1, v)) < 1$ , such that individuals within the community with the highest outside options would have an incentive to leave when the community is of size 1. The community will attain its steady-state at  $n^{ss}(v)$  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  $n^{ss}(v)$ , the highest value of  $n$  (smaller than the initial size of 1) at which the curve and the 45-degree line intersects. Starting from an initial size of 1, the community will find its steady state at the point of intersection furthest to the right. While the curve and the line may also 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  $n^{ss}(v)$  has been reached. Multiple equilibria are therefore precluded.

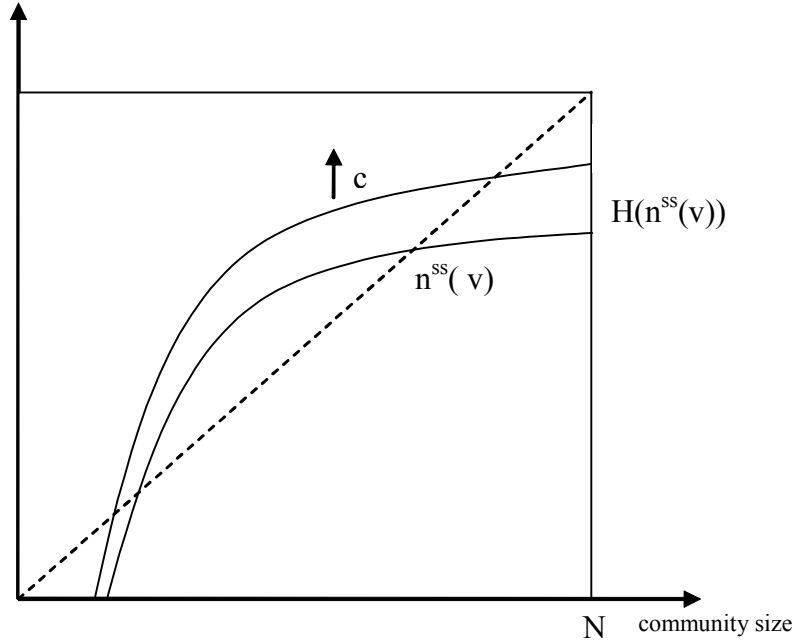


Figure 1:

## 2.4 Comparative Statics

A change in any of the parameters  $c$ ,  $f$ , and  $\phi$  would affect the threshold outside option for each  $n$  and  $v^M$ , therefore shifting the curve in Figure 1 and giving rise to a new steady-state. In particular, for a given  $v$ , an increase in  $c$  raises the curve and thus leads to a higher steady-state, while an increase in  $f$  or  $\phi$  lowers the curve and leads to a lower steady-state. A higher  $v^M$  shifts the curve upwards leading to a larger  $n^{ss}$ . 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.

Let us now consider the custom that maximizes 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 sufficiently patient), then the optimal steady-state choice should closely approximate the overall optimal choice.

The custom that maximizes the steady-state level of utility for the informal judge is given by

$$\hat{v}^M = \arg \max_v X(n^{ss}(v)) - g(v). \quad (3)$$

Then, if the problem has an interior solution, it satisfies the following first order condition:

$$X'(n^{ss}(v)) \frac{\partial n^{ss}}{\partial v} - g'(v) = X'(n^{ss}(v)) \frac{h(\omega) u'(v)}{1 - h(\omega) Y'(n^{ss}(v))} - g'(v) = 0 \quad (4)$$

where we have substituted for  $\frac{\partial n^{ss}}{\partial v}$  using (2) and the definition of  $\bar{\omega}(n, v^M)$ .

The economic intuition behind this expression is as follows. The first term,  $X'(n^{ss}(v)) \frac{\partial n^{ss}}{\partial v}$ , represents the marginal benefit of opting for a custom that is more favorable to type- $B$  individuals. A custom that is marginally more favorable to  $B$  would increase the steady-state size of the community by  $\frac{\partial n^{ss}}{\partial v}$  and each unit of this increase is multiplied by the per-unit increase in the prestige of the mediator,  $X'(n^{ss}(v))$ . The second term is simply the marginal cost of this action, coming from the incremental disutility of moving the custom away from the mediator's preferred point. The payoff-maximizing custom thus equates the marginal benefit to the marginal cost. Note that the changes in  $\frac{\partial n^{ss}}{\partial v}$ , i.e. how effective is the change in custom in increasing the size of the community, would crucially affect the equilibrium custom,  $\hat{v}^M$ .

We can now consider how the optimal choice of the informal judge changes with parameters  $c$ ,  $f$ , and  $\phi$ . The comparative statics results are described in the following proposition (see Appendix A for the complete proof).

**Proposition 1** : (i) If  $h'(\omega) < 0$ , then  $\hat{v}^M$  is decreasing in  $c$ , the cost of accessing the formal court for the poor; increasing in  $f$ , the mean of the verdict of the formal judge; and in  $\phi$ , the inverse of the variance of the formal verdict.

(ii) If  $h'(\omega) > 0$  and  $X''(\cdot), Y''(\cdot) \approx 0$ , then  $\hat{v}^M$  is increasing in  $c$ , and decreasing in  $f$  and  $\phi$ .

(iii) The steady-state size of the community is increasing in  $c$  and decreasing in  $f$  and  $\phi$  for all distributions  $H(\cdot)$ .

The proposition states that, if  $h'(\omega) < 0$ , any change in the formal legal system (as described by the parameters  $c$ ,  $f$ , and  $\phi$ ) that makes it more attractive for a type- $B$  individual to exit the community would also induce the informal judge to opt for a law or custom that is correspondingly more favorable to  $B$ . However, paradoxically, if  $h'(\omega) > 0$ , and the functions  $X(\cdot)$  and  $Y(\cdot)$  are linear, then the informal judge opts for a custom that is *more favorable to A* when type- $B$  individuals find their interests better served by the formal system.

The simple insight behind these results is that the strength of the incentive of the informal judge to provide a ruling that deviates from his preferred verdict is determined by the mass of type- $B$  individuals he would persuade to remain within the informal system by doing so. If  $h'(\omega) < 0$ , then any exogenous change which renders the formal legal system more attractive to  $B$  raises the mass of type- $B$  individuals who are just indifferent between the formal and informal court. As a result, there is also an increase in the additional number of cases that the informal judge can keep under his jurisdiction by making the custom marginally

more favorable to  $B$ . Therefore, he would opt for a custom that is more supportive of  $B$ . The opposite is true if  $h'(\omega) > 0$ : in this case, making the formal system more favorable to  $B$  (by increasing  $f$ ) *lowers* the mass of type- $B$  individuals who are just indifferent between the formal and informal court, and thus the mediator's net marginal benefit of raising  $v$  declines. He thus opts for a more conservative custom (i.e. one that is more favorable to  $A$ ).

In either case, as the formal court becomes more favorable to type- $B$  individuals, they will opt for the formal system in greater numbers and the community will reach its steady-state at a smaller value of  $n$ . In particular, even when the mediator responds to a change in the formal law by moving the custom in the same direction, his reaction is never strong enough to fully outweigh the change in the formal law.

The above analysis is restricted to situations where the customary law is preserved and coexists with the modern statutory law. Within the same framework, an alternative situation may arise where the former is superseded by the latter. Such a situation is depicted in Figure 2. Here, the curve  $H(\bar{\omega}(n))$  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  $H(\bar{\omega}(n, v^M))$  intersects with the dotted line. Then he would choose  $v^M = I = 0$ , 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 being part of the community 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 unlikely to be observed in reality, the scenario in which only rich members of the community remain within the ambit of the custom is implausible.



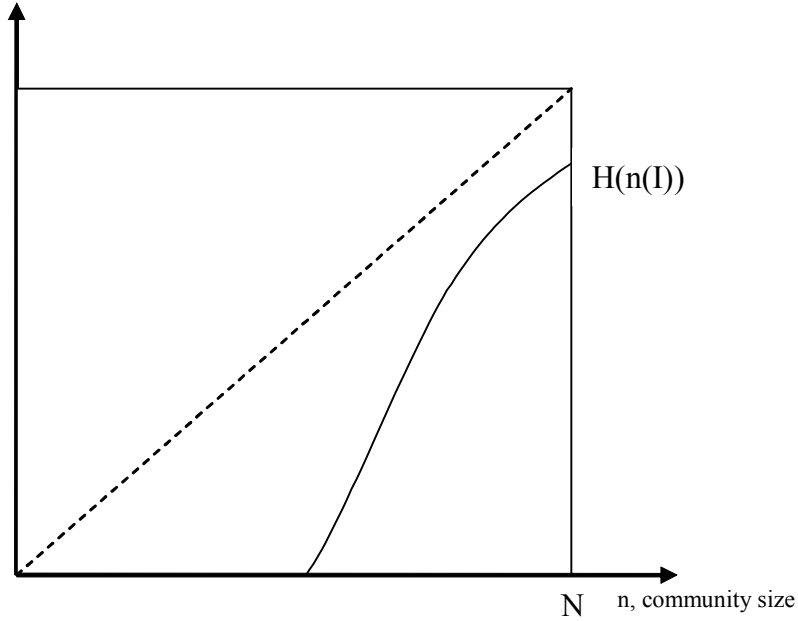


Figure 2:

## 2.5 Welfare Analysis and Public Intervention

A legal reform that makes the formal law more favorable 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 are affected indirectly since the mediator changes the custom as a reaction to the change in the formal law. Following Proposition 1, this effect can be either positive or negative. In addition, we know from Proposition 1 that some additional members will leave the informal system following any pro-poor legal reform. This leads to the third effect: a loss in the value of being part of the community for those who have remained in the now reduced community.

To represent the aggregate welfare of the poor individuals in the population mathematically, remember that  $\Lambda = (c, f, \phi)$  denotes the 3-tuple of parameters that describe the formal legal system. For clarity of exposition, we write as  $\bar{\omega}(n, v, \Lambda)$ ,  $n^{ss}(v, \Lambda)$  and  $\hat{v}^M(\Lambda)$ , the corresponding functions defined in section 2.3, to express clearly the dependence of the steady-state equilibrium on the characteristics of the formal legal system. Let  $\hat{n}^{ss}(\Lambda) = n^{ss}(\hat{v}^M(\Lambda), \Lambda)$ ,  $\hat{\omega}(\Lambda) = \bar{\omega}(\hat{n}^{ss}(\Lambda), \hat{v}^M(\Lambda), \Lambda)$ . Then the aggregate welfare of the

poor can be expressed as follows:

$$W = H(\hat{\omega}(\Lambda)) \{Y(\hat{n}^{ss}(\Lambda)) + \delta u(\hat{v}^M(\Lambda))\} + \int_{\hat{\omega}}^{\omega^{\max}} [\omega + \delta Eu(v^F) - \delta c] dH(\omega).$$

The first term has two multiplicative components:  $H(\hat{\omega}(\Lambda))$  is the fraction of the population which remains within the community when  $\hat{\omega}(\Lambda)$  is the threshold outside option, while the expression within the curved brackets is the expected per-period utility for each community member. The second term contains the expression in the square brackets, which is the expected per-period utility of an individual with outside option  $\omega$  who has left the community and the integral represents the average utility of these individuals. Then we can obtain the marginal effect on the welfare of a pro-poor legal reform by differentiating this expression with respect to  $f$ :

$$\frac{\partial W}{\partial f} = \hat{n}^{ss} \left\{ Y'(\hat{n}^{ss}) \frac{d\hat{n}^{ss}}{df} + \delta u'(\hat{v}^M) \frac{d\hat{v}^M}{df} \right\} + (1 - \hat{n}^{ss}) \delta \frac{dEu(v^F)}{df}. \quad (5)$$

Here, the three effects outlined above can be seen clearly. The term  $Y'(\hat{n}^{ss}) \frac{d\hat{n}^{ss}}{df}$  represents the loss in welfare for each community member when someone is excluded from the community.  $\delta u'(\hat{v}^M) \frac{d\hat{v}^M}{df}$  is the effect on these same members of the reaction of the customary authority to the change in the formal law. Finally, the term  $\delta \frac{dEu(v^F)}{df}$  is the gain for a poor individual who has already left the community. Thus, we have the following result.

**Proposition 2** *An increase in  $f$  has three distinct effects on the welfare of the poor within the community: (i) a loss in utility for each community member equal to  $Y'(\hat{n}^{ss}) \frac{d\hat{n}^{ss}}{df}$ , (ii) an additional change in utility for each community member equal to  $\delta u'(\hat{v}^M) \frac{d\hat{v}^M}{df}$  which may be positive or negative, and (iii) a gain in utility for each poor individual who has already left the community equal to  $\delta \frac{dEu(v^F)}{df}$ .*

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 welfare function with respect to  $f$ . Deriving throughout the expression in (5) with respect to  $f$ , we obtain

$$\begin{aligned} \frac{\partial^2 W}{\partial f^2} = & [Y'(\hat{n}^{ss}) + \hat{n}^{ss} Y''(\hat{n}^{ss})] \left( \frac{d\hat{n}^{ss}}{df} \right)^2 + [\hat{n}^{ss} Y'(\hat{n}^{ss})] \frac{d^2 \hat{n}^{ss}}{df^2} + \delta \frac{d^2 Eu(v^F)}{df^2} \\ & - \delta \frac{d\hat{n}^{ss}}{df} \left\{ \frac{dEu(v^F)}{df} - u'(\hat{v}^M) \frac{d\hat{v}^M}{df} \right\} - \hat{n}^{ss} \delta \left\{ \frac{d^2 Eu(v^F)}{df^2} - u''(\hat{v}^M) \left( \frac{d\hat{v}^M}{df} \right)^2 - u'(\hat{v}^M) \frac{d^2 \hat{v}^M}{df^2} \right\}. \end{aligned}$$

The second derivatives of  $\hat{n}^{ss}$  and  $\hat{v}^M$  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.

We thus get the following expression for the second derivative of the objective function:

$$\begin{aligned}
& [Y'(\hat{n}^{ss}) + \hat{n}^{ss} Y''(\hat{n}^{ss})] \left( \frac{d\hat{n}^{ss}}{df} \right)^2 + (1 - \hat{n}^{ss}) \delta E [u''(v^F)] \\
& + \hat{n}^{ss} \delta u''(\hat{v}^M) \left( \frac{d\hat{v}^M}{df} \right)^2 + \delta \frac{d\hat{n}^{ss}}{df} \left[ u'(\hat{v}^M) \frac{d\hat{v}^M}{df} - E u'(v^F) \right], \tag{6}
\end{aligned}$$

where we have used the fact that  $\frac{dv^F}{df} = 1$ . If this expression is negative for all values of  $f$ , the welfare function is globally concave, and therefore we obtain an interior solution. This would imply that a moderate legal reform leads to higher welfare for the marginalized section of the community than either a radical reform or abiding by the custom (i.e. providing the community no alternative to the custom to resolve disputes). On the other hand, if the expression is positive for all values of  $f$ , the welfare function is globally convex, and we obtain a corner solution. In this case, either a radical reform or abiding by the custom dominates a moderate reform. The exact shape of the welfare function depends on the curvature of the functions  $Y(\cdot)$  and  $u(\cdot)$ . Here, we state a proposition highlighting two cases in which we can unambiguously rank a moderate reform and its radical alternatives in terms of the welfare of the marginalized section of the community. These cases provide an intuition for the conditions under which a moderate reform is desirable (The proof is Appendix A).

**Proposition 3** (i) *If the elasticity of the marginal benefit of being part of the community with respect to its size 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.*

(ii) *If the utility function  $u(\cdot)$  is concave and if the above elasticity exceeds  $1 + \delta \left[ \frac{1}{h(\hat{\omega}(\Lambda)) Y'(\hat{n}^{ss}(\Lambda))} - 1 \right]$  for each value of  $f$ , then the welfare function is globally concave for some  $c, \phi$ . Then, if the welfare maximization problem has an interior solution, a moderate reform dominates both a radical reform and abiding by the custom in terms of the welfare of the poor.*

The intuition behind the proposition is as follows. Exclusion of individuals from the community diminishes the value of being part of the community and therefore entails a loss for those remaining within the ambit of the custom. On the other hand, as 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 being part of the community with respect to its size is below 1, then the first (infra-marginal) effect is offset by the second (marginal) effect. 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 assumptions that (i) the net benefit of being part of the community is sufficiently sensitive to its size, and (ii) the utility function is concave, the welfare function is concave. Then, the implementation of

a moderate law is preferred to a radical reform.<sup>8</sup> Concavity of the utility function means that the poor attach little additional value to a verdict that favours them more than a moderate outcome. This feature is likely to be observed whenever the poor do not value strong departures from custom-based outcomes because they have somehow internalized the social norms embedded in the tradition. If this internalization process is driven by the rich who benefit more from the custom, the existence of an interior solution follows, in part, 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" (Chirayath et al. 2005: 5). As has been suggested earlier (subsection 2.2), in West Africa, the legislators have 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). They therefore allowed another law system closer to the custom (the Islamic law) to be optionally applied in the modern court.

## 2.6 Effect of the Distribution of Outside Options on the Custom

In sections (2.4) and (2.5), we discussed how the informal law is influenced by changes in the formal legal system, and the socially optimal legal reform within the formal system when the informal judge behaves strategically. Next, we discuss how the distribution of outside options in the community influences the behavior of the informal judge for a given formal legal system.

Intuitively, the greater the number of individuals whose decision whether to remain within or exit the community depends on how far they are favoured by the custom, the more inclined will be the informal judge to choose a custom that is pro-poor. On the other hand, those who have very good outside options and would exit the community in any case, and those who would choose to remain in the community even if the custom were unfavorable because of their poor outside options, will not influence the decision of the informal judge. The following proposition provides conditions for the distribution of outside options that will make the custom chosen in one community more conservative than in another.

**Proposition 4** *Assume that  $X'', Y'' \approx 0$ . Denote by  $v_1$  and  $v_2$  the respective customs that maximize the utility of the informal judge for distributions  $H_1(\cdot)$  and  $H_2(\cdot)$ . Denote by  $n_1(v)$  and  $n_2(v)$  the corresponding sizes of the community in steady-state when the custom is described by  $v$ . If  $H_2'(\omega) \leq H_1'(\omega)$  for each  $\omega = \bar{\omega}(n_i(v), v), v \in [0, 1], i = 1, 2$ , then  $v_2 \leq v_1$ .*

Proposition 4 says that, comparing two distributions of outside options, if the population density for the former is lower over some interval consisting of the range of all possible values of  $\bar{\omega}$  (i.e. the outside option

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<sup>8</sup>If being part of the community is sufficiently valuable (or, contrarily, has sufficiently low value), we may still obtain the result that abiding by the custom or a radical reform dominates a moderate reform.

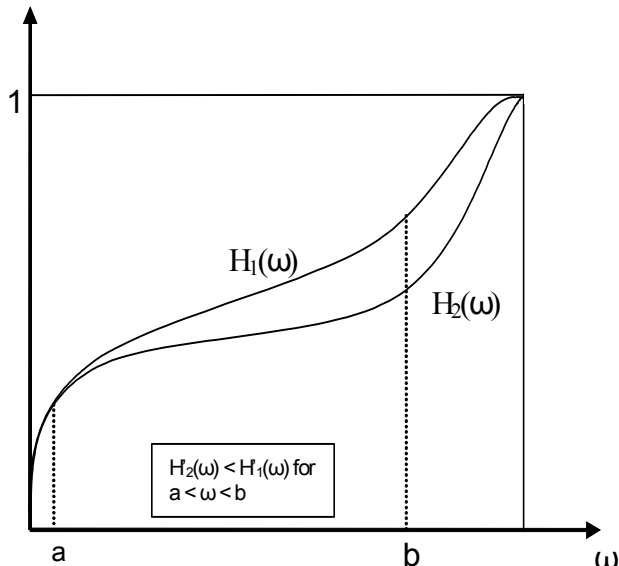


Figure 3:

at which an individual is indifferent between the two legal systems), then the informal judge will choose a more conservative custom for the former, and vice versa.

We can use this proposition to argue that increased market opportunities (e.g. access to trading opportunities) that can be exploited in the absence of community ties may well cause the custom to become more conservative if they bypass the relatively poor. To see this, note that as market opportunities increase, the distribution of outside options should shift to the right. If those who initially had poor outside options are left out of this process, then over time the population density with outside options in the middle of the range should decline. Then the distribution of outside options as a result of the increase in market opportunities may be represented by  $H_2(\cdot)$  with  $H_2'(\omega) < H_1'(\omega)$  over some interval, where  $H_1(\cdot)$  represents the original distribution (see Figure 3). If the outside option at which an individual is indifferent between the two legal systems falls within this interval for all possible values of the custom, then, applying Proposition 4, the informal judge opts for a custom that is closer to his ideal point when the distribution of outside options is described by  $H_2(\cdot)$ . Consequently, increased market opportunities drive the custom in a direction that is detrimental to the interests of the poor.

### 3 Application: Formal laws and informal rules in the case of women's and immigrants' rights

This section illustrates, on the basis of several examples, how formal law can have an influence on the welfare of the disadvantaged through its effect on the behavior of the informal judges.

**Inheritance.** 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 colonization of the (Middle) valley by successive waves of foreign conquerors since the 10th century, and Maraboutic power used the 1776 revolution in Senegal to 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 (Cooper 1997: 62-63). 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 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: 79). In terms of our 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 community has fallen as a result of an increase in women's education and an expansion of their non-agricultural employment opportunities (Platteau et al., 1999). Moreover, women that 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 a 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 observed in Niger where Cooper (1997) describes cases where women, in recognition of their ownership rights, receive part of the crop harvested on the family land by their brothers under an arrangement known as *aro* (Cooper 1997: 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 typically find it 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 (Cooper 1997: 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 behavior 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 favorable 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 community. To put it in another way, the expansion of education and non-agricultural employment opportunities for women provides them with better outside 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: 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 ( $c$ ) with the result that a growing proportion of women have recourse to the modern court.

**Divorce, marriage, and widowhood.** In the Sahel, the gradual transformation of the custom regarding women's rights to initiate a divorce can be analyzed 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 the recent years, however, women have progressively acquired a *de facto* right to leave an unhappy union. The main reasons are two: first, the severity of social sanctions against leaving an arranged marriage has diminished, to a large extent as a result of continued migration to neighboring countries such as the Ivory Coast. 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: 75, 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” (Hillhorst 2000: 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) recognizes 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 acts 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 favorable 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.<sup>9</sup> “The SPTA [Santal Pargana Tenancy Act] represented the *gharjawae* as an adopted son-in-law who inherits the land, rather than the daughter” and it is thus far away from the Hindu Succession Act (1956) which provides equal inheritance rights to sons and daughters (Rao 2007: 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 is often much less favorable 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 which induces them to have recourse to the formal law. Scarcity of land assets tends 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: 250). In the Luwero and Torero areas, 29% out of a total of 204 widows indicated that property was taken from them

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<sup>9</sup>Interestingly, this Act was 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 Act and the registering procedure that it provides, this evolution of the custom in favour of men’s interests has been counteracted.



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 (Joireman 2007: 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: 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” (see also André and Platteau 1998 and Verma 2001, for evidence regarding Rwanda and Kenya, respectively).<sup>10</sup>

These are obviously the most adverse conditions, likely to frustrate any attempt by the legislators to improve the women’s lot. In fact, any statutory law in favour of women may then be unable to change the custom. In terms of our model, given that the overcrowding of land and the ensuing social tensions and acrimony may hurt disproportionately more the women with worse outside options, it is analogous to a change in the distribution of outside options described by Proposition 4. As a result, the informal authority may be actually becoming more conservative.

**Immigrants’ rights.** Women are not the only social group which can be considered as discriminated against under the customary system of land tenure in Sub-Saharan Africa. Immigrants form another such group whose rights turn highly precarious when land pressure becomes acute (Platteau 2000, Chap. 4). In the Ivory Coast 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). This 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 stabilized. A more radical pro-immigrant law provision would have been less favorable to this vulnerable group as it would have stirred up huge resentful and antagonistic feelings within the host rural communities.

**Speed of reform.** The question as to how radical a legislation ought to be to have significant effects has always been the object of intense controversies between reformists and revolutionaries concerned with improving the lot of the poor. For instance, toward the beginning of the 20th century, the reformist *ulema* Ibnou Zakri stood up against the archaism of rural Islam in Kabylia, denouncing, in particular, the ignorance of the Islamic law of inheritance. Unlike other radical reformers, however, he was convinced that any change

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<sup>10</sup>In 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 (Cooper 1997: 82-89).

in the law had to be at least partly approved by the customary authorities. In the case of Kabylia, this meant that the village *zawaya* (local council) had to evolve so as to gradually accommodate a more progressive, and Islamic approach to women's rights (Chachoua 2001: 180-187). As it was standing, the *zawaya* was the "furnace of heresy" (Chachoua 2001: 176).

What we have offered above is obviously suggestive evidence rather than a test of the theory. In order to have a rigorous empirical test, one would need to disentangle the influence of the modern law on the custom from other influences born of economic, demographic, and ecological changes (population growth and increased market integration, in particular). This is extremely difficult since it requires the occurrence of a legal shock unaccompanied by other changes potentially affecting the custom, as well as the availability of relevant information about the pre- and post-shock situations.

## 4 Conclusion

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 behavioral patterns so as to effectively meet the pressing challenges of long-term economic growth and poverty reduction. 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 recognized rights, or the lack of credibility of the new rules and low trust in the state's enforcing ability. In this paper, we have analyzed the issue from a different point of view: one 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.

As our model shows, how far modern legislation succeeds in causing the custom to evolve in a pro-poor direction (understood in a wide sense allowing for any change that favours disadvantaged sections of the population) crucially depends upon the incentives of the customary authorities to keeping their people within the fold which, in turn, depends on several factors: the cost of accessing the formal court system, the cost of exclusion from the community, and the distribution of outside options among the poor.

A pro-poor change in law might induce customary authorities to adapt the custom in the same direction (however, not enough to prevent the proportion of poor people going to the formal court from rising). However, under some conditions, the same change can actually make the customary authorities to turn more conservative. Also, as inequality (in the distribution of these opportunities) grows, the custom is expected to become less favorable to the poor. 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 our 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. Changes in the surrounding circumstances that result in increased competition for land have an opposite effect, however: they cause a regressive shift in the custom.

Looking at those instances in which the formal law aims to change an established order that discriminates against a particular section of the community, we are concerned with the effect of a statutory law on the welfare of these individuals. Our model shows that a pro-poor legal reform has several distinct effects on the welfare of the poor and although some poor clearly benefit from the reform, some others - in particular, those with *worst* outside options - are hurt. This calls for a more balanced view of such reforms in a traditional society setting.

Upon careful thinking, the fact that the custom remains quite alive in regions such as Sub-Saharan 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 to be. A stronger state may even be counter-productive if it tries to impose radical legal reforms through legislative fiat. By allowing the modern statutory law to remain optional, the state exerts its influence through the indirect channel. This is possibly a suitable path for institutional development in countries where the custom remains strong.

## 5 Appendix A

**Proof.** of Proposition 1: Denote with  $\bar{\omega}(n, v, \Lambda)$  and  $n^{ss}(v, \Lambda)$  the corresponding functions defined in section 2.3, where  $\Lambda = (c, f, \phi)$ . (i) Taking the derivative with respect to  $v$  throughout the maximand in (3), we obtain

$$X'(n^{ss}(v, \Lambda)) \frac{h(\bar{\omega}(n^{ss}(\cdot), v, \Lambda)) u'(v)}{1 - h(\bar{\omega}(n^{ss}(\cdot), v, \Lambda)) Y'(n^{ss}(v, \Lambda))} - g'(v - I). \quad (7)$$

Define

$$\Phi(v, \Lambda) = \frac{h(\bar{\omega}(n^{ss}(\cdot), v, \Lambda)) u'(v)}{1 - h(\bar{\omega}(n^{ss}(\cdot), v, \Lambda)) Y'(n^{ss}(v, \Lambda))}$$

$$\begin{aligned}
\Rightarrow \quad \frac{\partial \Phi}{\partial c}(v, \Lambda) &= \frac{h'(\cdot) u'(v)}{[1 - h(\cdot) Y'(\cdot)]^2} \frac{\partial \bar{w}}{\partial c} + \frac{h(\cdot) u'(v) [h'(\cdot) Y'(\cdot) + h(\cdot) Y'' \frac{\partial n^{ss}}{\partial c}]}{[1 - h(\cdot) Y'(\cdot)]^2} \frac{\partial \bar{w}}{\partial c} \\
&= \frac{u'(v)}{[1 - h(\cdot) Y'(\cdot)]^2} \frac{\partial \bar{w}}{\partial c} \left[ h'(\cdot) + h(\cdot) \left\{ h'(\cdot) Y'(\cdot) + Y'' \frac{\partial n^{ss}}{\partial c} \right\} \right].
\end{aligned}$$

We can show that  $\frac{\partial n^{ss}}{\partial c} > 0$ <sup>11</sup>. Therefore, for  $h'(\cdot) \leq 0$ ,  $Y'' \leq 0$ , we have  $\frac{\partial \Phi}{\partial c}(v, \Lambda) \leq 0$ .

Taking the derivative w.r.t.  $c$  throughout (7), we obtain

$$X''(\cdot) \frac{\partial n^{ss}}{\partial c} \Phi(v, \Lambda) + X'(\cdot) \frac{\partial \Phi}{\partial c} \quad (8)$$

Since  $X''(\cdot) \leq 0$ , the expression in (8) is non-positive; i.e. the cross-partial w.r.t.  $v$  and  $c$  in the maximand is non-positive. Then, using Topkis's theorem, we have that  $\hat{v}^M$  is decreasing in  $c$ .

Similarly, we can show that  $\frac{\partial \Phi}{\partial f} \geq 0$  and  $\frac{\partial \Phi}{\partial \phi} \leq 0$ . Applying Topkis's theorem again, we obtain  $\hat{v}^M$  is increasing in  $f$  and decreasing in  $\phi$ .

(ii) If  $h'(\cdot) > 0$  and  $Y''$  is sufficiently small,  $\frac{\partial \Phi}{\partial c}(n, v, \Lambda) \geq 0$ . Then, for  $X''(\cdot)$  sufficiently small, the expression in (8) is greater than or equal to zero. Therefore, Topkis's theorem implies that  $\hat{v}^M$  is increasing in  $c$ . Similarly, we can show that  $\frac{\partial \Phi}{\partial f}(n, v, \Lambda) \leq 0$  and  $\frac{\partial \Phi}{\partial \phi}(n, v, \Lambda) \geq 0$ . Therefore,  $\hat{v}^M$  is decreasing in  $f$  and increasing in  $\phi$ .

(iii) Let  $v_1$  be the value of the custom that maximizes the utility of the informal judge, and  $n_1$  the resulting size of the community, in steady-state, when the formal system is described by the parameters  $\Lambda_1 = (c, f_1, \phi)$ . Let  $v_2, n_2$  be the corresponding values when the formal system is described by the parameters  $\Lambda_2 = (c, f_2, \phi)$ . Let's show that, if  $f_2 > f_1$ , then we must have  $n_2 < n_1$ . We show this by contradiction: first, define the

<sup>11</sup>The function  $n^{ss}(v, \Lambda)$  satisfies the following identity:

$$H(\bar{w}(n^{ss}, v, \Lambda)) \equiv n^{ss}$$

Taking the derivative w.r.t  $c$  throughout this identity, we obtain

$$\begin{aligned}
h(\cdot) \left[ \frac{\partial \bar{w}}{\partial c} + \frac{\partial \bar{w}}{\partial n^{ss}} \frac{\partial n^{ss}}{\partial c} \right] &\equiv \frac{\partial n^{ss}}{\partial c} \\
\Rightarrow \frac{\partial n^{ss}}{\partial c} &\equiv \frac{h(\cdot) \frac{\partial \bar{w}}{\partial c}}{[1 - h(\cdot) \frac{\partial \bar{w}}{\partial n^{ss}}]}
\end{aligned}$$

Note that,  $H(\bar{w}(n, v, \Lambda)) < n$  for each  $n > n^{ss}$  (otherwise, the steady-state would be reached before the community shrinks to size  $n^{ss}$ ). Therefore, we have

$$\begin{aligned}
&\lim_{\delta \rightarrow 0^+} \frac{H(\bar{w}(n^{ss} + \delta, v, \Lambda)) - H(\bar{w}(n^{ss}, v, \Lambda))}{\delta} \\
< &\lim_{\delta \rightarrow 0^+} \frac{n^{ss} + \delta - n^{ss}}{\delta} = 1 \\
&\Rightarrow \frac{\partial}{\partial n} H(\bar{w}(n, v, \Lambda)) < 1 \\
&\text{i.e. } 1 - h(\bar{w}(n, v, \Lambda)) \frac{\partial \bar{w}}{\partial n^{ss}} > 0
\end{aligned}$$

Also, from the definition of  $\bar{w}(n, v, \Lambda)$ ,  $\frac{\partial \bar{w}}{\partial c} > 0$ . Hence, we have  $\frac{\partial n^{ss}}{\partial c} > 0$ .

functions  $v(n, \Lambda)$  and  $U^M(n, \Lambda)$  as follows:

$$v(n, \Lambda) = \min \{v : H(\bar{\omega}(n, v, \Lambda)) = n\} \quad (9)$$

$$U^M(n, \Lambda) = X(n) - g(v(n, \Lambda)). \quad (10)$$

In other words,  $v(n, \Lambda)$  is the smallest value of the custom for which a fraction  $n$  of poor individuals in the community would remain within the community in steady-state.  $U^M(n, \Lambda)$  is the level of utility obtained by the informal judge if his choice of the custom is such that the size of the community attained in steady-state is  $n$ .

Suppose  $n_2 \geq n_1$ . By the fundamental theorem of calculus,

$$U^M(n_2, \Lambda_2) = U^M(n_1, \Lambda_2) + \int_{n_1}^{n_2} \frac{d}{dn} U^M(n, \Lambda_2) dn.$$

By assumption,  $U^M(n_2, \Lambda_2) > U^M(n_1, \Lambda_2)$ . Therefore,

$$\begin{aligned} & \int_{n_1}^{n_2} \frac{d}{dn} U^M(n, \Lambda_2) dn > 0 \\ \implies & \int_{n_1}^{n_2} X'(n) \Phi(v(n, \Lambda_2), \Lambda_2) - g'(v(n, \Lambda_2)) \frac{\partial v}{\partial n} dn > 0. \end{aligned}$$

However,  $v(n, \Lambda_1) < v(n, \Lambda_2)$ .<sup>12</sup> Thus, if  $g'' \geq 0$ , then  $g'(v(n, \Lambda_2)) \geq g'(v(n, \Lambda_1))$ . Also,  $\Phi(v(n, \Lambda_1), \Lambda_1) > \Phi(v(n, \Lambda_2), \Lambda_2)$ <sup>13</sup> and  $\frac{\partial v}{\partial n}(n, \Lambda_1) < \frac{\partial v}{\partial n}(n, \Lambda_2)$ .<sup>14</sup> Therefore, we have

$$\begin{aligned} & \int_{n_1}^{n_2} \frac{d}{dn} U^M(n, \Lambda_1) dn > 0 \\ \implies & U^M(n_1, \Lambda_1) + \int_{n_1}^{n_2} \frac{d}{dn} U^M(n, \Lambda_1) dn > U^M(n_1, \Lambda_1) \\ \implies & U^M(n_2, \Lambda_1) > U^M(n_1, \Lambda_1), \end{aligned}$$

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<sup>12</sup>>From the definition of  $\bar{\omega}(n, v, \Lambda)$ , we have  $\bar{\omega}(n, v, \Lambda_2) < \bar{\omega}(n, v, \Lambda_1)$ . Therefore,

$$H(\bar{\omega}(n, v(n, \Lambda_1), \Lambda_2)) < H(\bar{\omega}(n, v(n, \Lambda_1), \Lambda_1))$$

Then, using (9), we have  $v(n, \Lambda_2) > v(n, \Lambda_1)$ .

<sup>13</sup>We have

$$\frac{h(\bar{\omega}(n, v(n, \Lambda_1), \Lambda_1)) u'(v(n, \Lambda_1))}{1 - h(\bar{\omega}(n, v(n, \Lambda_1), \Lambda_1)) Y'(n)} > \frac{h(\bar{\omega}(n, v(n, \Lambda_2), \Lambda_2)) u'(v(n, \Lambda_2))}{1 - h(\bar{\omega}(n, v(n, \Lambda_2), \Lambda_2)) Y'(n)}$$

since

$$\bar{\omega}(n, v(n, \Lambda_1), \Lambda_1) = \bar{\omega}(n, v(n, \Lambda_2), \Lambda_2)$$

and  $v(n, \Lambda_1) < v(n, \Lambda_2)$ . Therefore,

$$\Phi(v(n, \Lambda_1), \Lambda_1) > \Phi(v(n, \Lambda_2), \Lambda_2).$$

<sup>14</sup>>From the definitions of  $v(n, \Lambda)$  and  $\bar{\omega}(n, v, \Lambda)$ , we have

$$\frac{\partial v(n, \Lambda)}{\partial n} = \frac{1}{u'(v(n, \Lambda))} \left\{ \frac{1}{n} - Y'(n) \right\}$$

Since  $v(n, \Lambda_1) < v(n, \Lambda_2)$ , we have  $u'(v(n, \Lambda_1)) > u'(v(n, \Lambda_2))$ . Therefore,  $\frac{\partial v(n, \Lambda_1)}{\partial n} < \frac{\partial v(n, \Lambda_2)}{\partial n}$ .

which contradicts the assumption that when the formal system is described by  $\Lambda_1$ , and the informal judge chooses the custom to maximize his steady-state utility, the steady-state is reached for a community size of  $n_1$ . We must have then  $n_2 \leq n_1$ . Therefore, the steady-state size of the community  $n^{ss}$  is decreasing in  $f$ . Through similar reasoning, we can show that  $n^{ss}$  is increasing in  $c$  and decreasing in  $\phi$ . ■

**Proof.** of Proposition 3: Rearranging the expression in (6), we can write

$$\begin{aligned} & \left( \frac{d\hat{n}^{ss}}{df} \right)^2 \left[ Y'(\hat{n}^{ss}) + \hat{n}^{ss} Y''(\hat{n}^{ss}) + \delta \left\{ u'(\hat{v}^M) \frac{d\hat{v}^M}{df} - E u'(v^F) / \frac{d\hat{n}^{ss}}{df} \right\} \right] \\ & + (1 - \hat{n}^{ss}) \delta E [u''(v^F)] + \hat{n}^{ss} \delta u''(\hat{v}^M) \left( \frac{d\hat{v}^M}{df} \right)^2. \end{aligned} \quad (11)$$

>From the definition of  $\hat{n}^{ss}$ , we have  $\frac{d\hat{n}^{ss}}{df} = \frac{1 - h(\hat{\omega}(\Lambda)) Y'(\hat{n}^{ss})}{h(\hat{\omega}(\Lambda)) \left[ u'(\hat{v}^M) \frac{d\hat{v}^M}{df} - E u'(v^F) \right]}$ <sup>15</sup>. Substituting for  $\frac{d\hat{n}^{ss}}{df}$  in (6), we obtain

$$\begin{aligned} & \left( \frac{d\hat{n}^{ss}}{df} \right)^2 \left[ Y'(\hat{n}^{ss}) + \hat{n}^{ss} Y''(\hat{n}^{ss}) + \delta \frac{1 - h(\hat{\omega}(\Lambda)) Y'(\hat{n}^{ss})}{h(\hat{\omega}(\Lambda))} \right] \\ & + (1 - \hat{n}^{ss}) \delta E [u''(v^F)] + \hat{n}^{ss} \delta u''(\hat{v}^M) \left( \frac{d\hat{v}^M}{df} \right)^2 \end{aligned} \quad (12)$$

$$\begin{aligned} & = \left( \frac{d\hat{n}^{ss}}{df} \right)^2 Y'(\hat{n}^{ss}) \left[ \frac{\hat{n}^{ss} Y''(\hat{n}^{ss})}{Y'(\hat{n}^{ss})} + 1 + \delta \left\{ \frac{1}{h(\hat{\omega}(\Lambda)) Y'(\hat{n}^{ss})} - 1 \right\} \right] \\ & + (1 - \hat{n}^{ss}) \delta E [u''(v^F)] + \hat{n}^{ss} \delta u''(\hat{v}^M) \left( \frac{d\hat{v}^M}{df} \right)^2. \end{aligned} \quad (13)$$

(i) If utility is linear, then  $u''(\hat{v}^M) = E [u''(v^F)] = 0$ . Then, the expression in (13) is positive if

$$\frac{\hat{n}^{ss} Y''(\hat{n}^{ss})}{Y'(\hat{n}^{ss})} > 1 + \delta \left\{ \frac{1}{h(\hat{\omega}(\Lambda)) Y'(\hat{n}^{ss})} - 1 \right\}$$

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<sup>15</sup>By definition,  $\hat{n}^{ss}$  satisfies the following equation:

$$H(\bar{\omega}(\hat{n}^{ss}, \hat{v}^{ss}(\Lambda), \Lambda)) \equiv \hat{n}^{ss}$$

Differentiating throughout w.r.t.  $f$ , we obtain

$$\begin{aligned} & h(\bar{\omega}(\cdot)) \left\{ \frac{\partial \bar{\omega}}{\partial n} \cdot \frac{\partial \hat{n}^{ss}}{\partial f} + \frac{\partial \bar{\omega}}{\partial v} \frac{\partial \hat{v}^M}{\partial f} + \frac{\partial \bar{\omega}}{\partial f} \right\} \equiv \frac{\partial \hat{n}^{ss}}{\partial f} \\ & \implies \frac{\partial \hat{n}^{ss}}{\partial f} = \frac{\frac{\partial \bar{\omega}}{\partial v} \frac{\partial \hat{v}^M}{\partial f} + \frac{\partial \bar{\omega}}{\partial f}}{1 - h(\bar{\omega}(\cdot)) \frac{\partial \bar{\omega}}{\partial n}} \end{aligned}$$

Substituting for  $\frac{\partial \bar{\omega}}{\partial n}$ ,  $\frac{\partial \bar{\omega}}{\partial v}$  and  $\frac{\partial \bar{\omega}}{\partial f}$  using the definition of  $\bar{\omega}$ , we obtain

$$\frac{\partial \hat{n}^{ss}}{\partial f} = \frac{1 - h(\bar{\omega}(\cdot)) Y'(\hat{n}^{ss})}{h(\bar{\omega}(\cdot)) \left[ u'(\hat{v}^M) \frac{d\hat{v}^M}{df} - E u'(v^F) \right]}$$

Since  $\hat{\omega}(\Lambda) = \bar{\omega}(\hat{n}^{ss}, \hat{v}^{ss}(\Lambda), \Lambda)$ , we have

$$\hat{\omega}(\Lambda) = \frac{1 - h(\hat{\omega}(\Lambda)) Y'(\hat{n}^{ss})}{h(\hat{\omega}(\Lambda)) \left[ u'(\hat{v}^M) \frac{d\hat{v}^M}{df} - E u'(v^F) \right]}$$

$$\Leftrightarrow -\frac{\frac{dY'(n)}{Y'(n)}}{\frac{dn}{n}} < 1 + \delta \left\{ \frac{1}{h(\hat{\omega}(\Lambda)) Y'(\hat{n}^{ss})} - 1 \right\}.$$

Note that, in the steady-state,  $h(\hat{\omega}(\Lambda)) Y'(\hat{n}^{ss}) < 1^{16}$ . Therefore, if the elasticity of the marginal benefit of being part of the community with respect to its size is below 1, the expression in (??) is positive. Thus, the welfare maximization problem is globally convex and the problem always has a corner solution. Therefore, either abiding by the custom or carrying out a radical reform dominates a moderate reform in the formal law.

(ii) If utility is concave, then  $u''(\hat{v}^M) < 0$ ,  $E[u''(v^F)] < 0$ . Then, the expression in (13) is negative if

$$\begin{aligned} \frac{\hat{n}^{ss} Y''(\hat{n}^{ss})}{Y'(\hat{n}^{ss})} &< 1 + \delta \left\{ \frac{1}{h(\hat{\omega}(\Lambda)) Y'(\hat{n}^{ss})} - 1 \right\} \\ \Leftrightarrow -\frac{\frac{dY'(n)}{Y'(n)}}{\frac{dn}{n}} &> 1 + \delta \left\{ \frac{1}{h(\hat{\omega}(\Lambda)) Y'(\hat{n}^{ss})} - 1 \right\}. \end{aligned} \quad (14)$$

Therefore, given  $c, \phi$ , the welfare maximization problem is globally concave if the condition in (14) is satisfied for each possible value of  $f$ . If this problem has an interior solution, then it implies that a moderate reform would dominate either abiding by the custom or carrying out a radical reform. ■

**Proof.** of Proposition 4: Define the function  $G : [0, 1] \times \{1, 2\} \mapsto [0, 1]$  such that  $G(\omega, 1) = H_1(\omega)$  and  $G(\omega, 2) = H_2(\omega)$ .

Let  $\tilde{n}(v, s)$  be defined as follows:

$$\tilde{n}(v, s) = \max \{n : G(\bar{\omega}(n, v), s) = n\} \quad (15)$$

(for the sake of legibility, we suppress the parameters  $\Lambda$ ). Then, it is possible to show that, for  $X'', Y'' \approx 0$ , if

$$H_2'(\bar{\omega}(\tilde{n}(v, 2), v)) > H_1'(\bar{\omega}(\tilde{n}(v, 1), v)) \quad (16)$$

then the expression  $X(\tilde{n}(v, 2)) - X(\tilde{n}(v, 1))$  is increasing in  $v$ .<sup>17</sup>

Therefore, the function

$$V^M(v, s) = X(n(v, s)) - g(v) \quad (18)$$

<sup>16</sup>As shown above, in the steady-state,  $h(\bar{\omega}(n^{ss}, v, \Lambda)) Y'(n^{ss}) < 1$ . Since  $h(\hat{\omega}(\Lambda)) = \bar{\omega}(n^{ss}, \hat{v}^M(\Lambda), \Lambda)$  and  $\hat{n}^{ss}(\Lambda) = n^{ss}(v, \Lambda)$ . Therefore,  $h(\hat{\omega}(\Lambda)) Y'(\hat{n}^{ss}) < 1$ .

<sup>17</sup>To see this, differentiate the expression  $X(\tilde{n}(v, 2)) - X(\tilde{n}(v, 1))$  throughout w.r.t  $v$ :

$$X'(\tilde{n}(v, 2)) \frac{\partial \tilde{n}}{\partial v}(v, 2) - X'(\tilde{n}(v, 1)) \frac{\partial \tilde{n}}{\partial v}(v, 1) \quad (17)$$

Differentiating throughout (15) and rearranging, we have

$$\frac{\partial \tilde{n}}{\partial v}(v, s) = \frac{u'(v)}{1/H_s'(\bar{\omega}(\tilde{n}(v, s), v)) - Y'(\tilde{n}(v, s))}$$

Since  $Y'' \approx 0$ , we have  $Y'(\tilde{n}(v, 1)) \approx Y'(\tilde{n}(v, 2))$ . Thus, given  $H_2'(\bar{\omega}(\tilde{n}(v, 2), v)) > H_1'(\bar{\omega}(\tilde{n}(v, 1), v))$ , we obtain  $\frac{\partial \tilde{n}}{\partial v}(v, 2) < \frac{\partial \tilde{n}}{\partial v}(v, 1)$ . Since  $X'' \approx 0$ , we have  $X'(\tilde{n}(v, 1)) \approx X'(\tilde{n}(v, 2))$ . Therefore, we can conclude that the expression in (17) is greater than zero.

exhibits ‘increasing differences’ in  $v, s$  as defined by Topkis (1978) over its domain  $[0, 1] \times \{1, 2\}$  if the condition in (16) is satisfied for  $v \in [0, 1]$ . Let  $\tilde{v}(s)$  be the value of  $v$  at which the expression (18) attains its maximum. Then, applying Topkis’ theorem,  $\tilde{v}(2) > \tilde{v}(1)$ . Similarly, we can show that  $\tilde{v}(2) < \tilde{v}(1)$  if  $H'_2(\bar{\omega}(n(v, 2), v)) < H'_1(\bar{\omega}(n(v, 1), v))$  for  $v \in [0, 1]$ . ■

## 6 Appendix B

In this appendix, we investigate the behavior of a forward-looking individual in the community; i.e. a disputant who takes into account future gains and losses when deciding whether or not to appeal to the formal court today. Consider a poor individual with outside option  $\omega$  who faces a dispute in the current period. Suppose that the custom provides a higher current utility than exiting the community. That is,

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

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 at 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:

$$Y(n) + u(v^M) < \omega + Eu(v^F) - c. \tag{19}$$

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  $\delta$  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  $\omega + \delta [Eu(v^F) - c]$ . For  $\delta$  sufficiently close to 1, the condition in (19) implies that

$$Y(n) + \delta u(v^M) < \omega + \delta [Eu(v^F) - c]. \tag{20}$$

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 in the same way as a myopic agent for  $\delta$  close to 1.

The remaining case we need to investigate is where (19) holds but  $\delta$  is sufficiently low such that (20) is violated. This implies, in particular that  $Y(n) > \omega$ . Then an individual with outside option  $\omega$  may choose to remain in the community in the current period because of the benefits of the community-level public good. Clearly, raising  $\omega$  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  $\omega_{hl}(n, v^M)$  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  $\omega_{hl}(n, v^M) > \bar{\omega}(n, v^M)$ . Raising  $n$  or  $v^M$  increases the expected utility from remaining with the community both in the current period and in the future. Therefore,  $\omega_{hl}(n, v^M)$  is increasing in both  $n$  and  $v^M$ .

In summary, for  $\delta$  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  $\delta$  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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