



**THE CUSTOM IN THE SHADOW OF THE FORMAL LAW: AN  
ECONOMIC ANALYSIS**

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

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## **Abstract**

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

# 1 Introduction

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

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

When the required change in expectations does not take place because of one or several of these reasons, customary rules tend to persist, and formal laws destined to replace them remain ‘dead letters’. In the conceptual universe of the institutions-as-equilibria approach, the new law does not get established as an institution because a certain representation becomes an institution only if the agents mutually believe in it. In other words, the new law must be a focal point in order to replace the prevailing custom (Aoki, 2001, p. 13; Greif, 2006, pp. 3-53; Basu, 2000, pp. 111-15). For instance, laws which have been enacted in countries of SubSaharan Africa with the aim of preventing excessive fragmentation of rural lands –whether through inheritance or through land sale transactions–, have never been really enforced. This is due not so much to people’s ignorance of the law as to their widespread belief that it runs counter to deeply entrenched customary principles (such as the rights of all male children to receive a portion of the family land), and is therefore unlikely to be followed by others or to be backed by appropriate sanctions (André and Platteau

1998). An alternative example is the case of Peru where the new water law ("ley del agua") that prescribes fee payments by users of irrigation water meets with determined opposition members of Andean communities. According to a deeply entrenched custom, indeed, water is a communal good that should remain free.

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

The general picture that emerges from the literature dealing with legal pluralism is rather pessimistic: except in cases where the statutory law is grounded in customary rules, legal pluralism tends to produce neutral or negative effects (see e.g. Chanock, 1985; Lund 1996, 1998; Lund and Hesselning, 1999; Mackenzie, 1996). In this paper, we want to argue that this pessimism is probably excessive: a more general approach to the problem of legal pluralism is required that would allow for a wider set of predictions. In particular, the possibility must exist that the formal law, under certain conditions, causes the conflicting informal rule to evolve in the direction aimed at by the legislator. More precisely, even if the formal law is not resorted to in an explicit manner, the simple fact that it exists and that people whose interests concur with its prescriptions can threaten to use it, might create a situation in which its objectives are partly met.

From the observation that a state legislation is rarely applied, one may therefore infer that it has no or little impact on people's behaviour. An immediate implication is that the situation of legal pluralism may persist for a long time despite the initial intention of the legislator to bring an end to it by displacing informal rules and customs. The ability of the latter rules to adapt under the constraint of a new legal framework is the critical factor explaining why legal pluralism may endure. When the formal law is intended to complement the custom, refraining to regulate all aspects of human life, the existence and persistence of legal pluralism are a direct consequence of the legislator's decision. By contrast, and this is where our contribution lies, when the intent is to substitute the formal law for the custom, legal pluralism may obtain as a self-perpetuating equilibrium outcome of strategic interactions between arbiters and claimants.

The above analytical perspective, it may be noted, enables us to account for an observation frequently made by social scientists: customary rules, far from being the static and rigid outcomes that economists depict as stable (Nash) equilibria, are continuously evolving in reality. Moreover, and most interestingly, several scholars have stressed that transformation of customs may partly occur as a result of the existence of

statutory laws which have the effect of conferring a stronger bargaining position on some particular section(s) of the population. For instance, we are told that “local landholding systems are not the expression of an unchanging ‘traditional law’, but the fruit of a process of social change, which incorporates the effects of national legislation” (Lavigne Delville, 2000, p. 114). What these empirical statements imply is that both claimants and informal judges believe that the formal law will be enforced. Otherwise, it would not have the effect of strengthening the bargaining power of the people disadvantaged by the custom.

The remainder of the paper is organised as follows. In Sections 2 and 3, we present a simple game-theoretic model with the purpose of proving the above statement that, even if not explicitly used or activated, a new formal law may, under certain conditions, bring changes in people’s behaviour via its impact on customary rules which most of them continue to follow. To allow for legal pluralism, - more exactly legal dualism -, the model features two laws, the statutory law and the custom, which are represented by a formal judge and an informal judge or arbiter who are able to enforce their respective rulings. Moreover, to incorporate the assumption of social heterogeneity, the model distinguishes between two types of possible claimants, the rich people whose interests tend to be well protected by the custom, and the poor whose interests tend to be neglected by it. People dissatisfied with the custom can appeal to the formal judge, yet the informal arbiter acts strategically, and may move some distance away from his preferred outcome in order to retain cases in the informal court. Two models are successively developed. In the first step, we assume that all the poor individuals are identical. The informal judge, when dealing with a conflict between a poor and a rich individual, makes a judgement that will either drive the poor individual to appeal to the formal court or to accept the verdict thereby confirming the predominance of the custom. The conditions under which all possible conflicts are kept within the informal jurisdiction will thus be highlighted. In the second step, not only are poor individuals assumed to be heterogeneous - so that a mixed equilibrium may obtain under which a fraction of the poor group has recourse to the formal court while the rest are content with customary judgements -, but the size of the remaining community or the number of its members staying with customary jurisdiction bears upon the benefits and costs associated with keeping an additional case under such jurisdiction.

Section 4 provides the reader with a number of examples illustrating how changes in various key parameters of the model affect the manner in which conflicts are being resolved. These examples draw from the literature on women’s rights and land tenure, particularly in the context of SubSaharan Africa. In the second part of this section, the domain of application of the model is extended so as to convince the reader that the relevance of the proposed theory is greater than what might appear at first sight. Section 4 summarizes the main findings of the paper.

## 2 A Model of Legal Dualism

### 2.1 Outline of the model

We consider a community in which conflicts can be arbitrated either by a formal judge or by an informal judge or arbiter. The latter lives in the community and has, in each case, a preferred judgement. This preferred judgement represents the community's dominant custom at the present time. The informal judge is not necessarily a single individual but may be a council composed of esteemed members of the community (e.g., elders, lineage heads). The formal judge operates in the framework of a court and bases his judgement on the written law. However, even assuming, as we do in the following exercise, that people have perfect information about this law (and sufficient trust in its enforceability) the modern judge's verdict is not completely predictable. There are three reasons explaining such unpredictability.

First, there is an information problem. Quoting Robert Bates, one can state this problem as follows: "although those who impose the statutory law make efforts to inform themselves (about the case), they remain outsiders and are therefore less likely to possess detailed information than would neighbours and kin" (Bates, 2001, p. 64). Since witnesses are expected to present conflicting evidence before the judge, the verdict eventually pronounced by him may well deviate from the ruling expected by the claimant on the basis of his reading of the statutory law. For example, unlike the custom that prevailed until recently in 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 that has been depicted in section 1. Note that legal pluralism in the above sense is more frequently observed in countries with important Muslim populations. In Tanzania, for example, up until recently, inheritance was governed by different laws of succession, including customary, Islamic and statutory laws. In 2001, laws voted in 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 were eventually put into operation (personal communication of Rasel Madaha). The customary law is the most unfavourable to women and the statutory law, which tends towards giving equal recognition to women's rights, is the most favourable. The Islamic law is in between. In deciding which law should apply to a particular case, courts tend to base their judgement on what is known as the "mode of life test" whereby the ethnicity and religious affiliation of the heir, as well as the intent of the deceased are taken into account. As a matter of principle, customary law applied to African Christians unless they could prove that the family had abandoned the African mode of life in which case statutory law applied. For

African Muslims, the Islamic law applied, unless it could be proven that the deceased had other intentions (Longway, 1999 as cited by Hilhorst, 2000, p.187). Uncertainty clearly inheres in the above situation since it is rather easy for claimants to distort information regarding “the mode of life” of the deceased so as to obtain the most favourable judgement before the formal court. But disagreement about the intentions of the deceased may be genuine rather than opportunistic. In the court of Koutiala (Mali), for example, a judge explained how he dealt with the case of a woman who claimed an equal inheritance share against the will of her only brother, and 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. Clearly, the plaintiff could have hoped to get a full share while the defendant could expect her to be rebuked and sent back to the customary authorities.

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

The community comprises 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. Once the dispute is resolved, the players participate in a social exchange game. But, if an agent appeals to the formal court, he is excluded from the social exchange game. Each non-excluded player contributes to the production of a social good and enjoys a benefit from it<sup>1</sup>.

Given that social exclusion carries a cost for the community, the assumption that such exclusion always takes place when a member of the community appeals to the formal court needs to be justified. Members of the community 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,

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<sup>1</sup>Our model may well apply to a caste system such as that found in India. It just requires that we understand the customary law as representing the interests of the highest caste(s). Lower castes may also have their own customs but, when a conflict arises between one of their members and a member belonging to the highest caste(s), the (informal) law of the latter outweighs that of the former. It is only by turning to the formal law system that lower caste members can hope to win against high caste members. Moreover, the social exchange game featured in the model corresponds to the sphere of relationships between high and low caste members.

it is in their interest that his prestige is preserved and he is widely respected both within and outside of the community. For this reason, 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 of a member of the community, social exclusion will be a credible threat, and actually implemented following any appeal to the formal law.

Another, perhaps even more compelling reason is suggested by a growing literature inspired by 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 an act arouses in them. To appeal to a stranger judge is tantamount to betraying one's community and thus gives rise to what Axelrod has called a reaction of 'vengefulness' (Axelrod, 1997, Chap. 3; see also Frank, 1988; Rabin, 1993).

The issue of the timing of events turns out to be critical. Indeed, if the verdict of the informal judge is implemented immediately and he has therefore full discretion over the verdict, his decision cannot in fact be influenced by the existence of the formal law. But, it is highly unrealistic to assume that, when a formal court exists, parties may not appeal to it if they are disappointed by the verdict of the informal judge. We will therefore consider an alternative timing of events in which either party may appeal to the formal court if he is not satisfied with the verdict of the informal judge. This possibility can act as a restraint on the actions of the informal judge, and in consequence, he can commit to giving a verdict that is not too much at variance with that prescribed by the formal court. The case where the decision of the informal judge is applied immediately is treated in Appendix A.

## 2.2 Description of the model

Consider a one-shot game involving an informal judge,  $M$ , and two individuals, a rich one ( $R$ ) and a poor one ( $P$ )<sup>2</sup>. There is a dispute between  $R$  and  $P$ , that is first mediated by the informal judge. Once the informal judge has given his verdict, the disputants face a binary choice: they can accept the verdict of the informal judge or appeal the verdict at a court of formal law<sup>3</sup>. Once the dispute is resolved, the players participate in a social exchange game.

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

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<sup>2</sup>The 'rich-poor' labelling needs not be interpreted in a strict sense. Indeed, the so-called 'rich' individual is the one who is favoured by the prevailing custom whereas the 'poor' individual is the one whose interests are neglected by it.

<sup>3</sup>Alternately, we may assume that the informal judge initially mediates the case only if his mediation is requested by both parties. This would enable a disputant to strategically bypass the informal court but it implies the somewhat strong informal assumption that the disputants have knowledge about the preferences of the informal judge and can thus anticipate his judgement.

without  $R$  is played, and the payoffs of all parties are determined; otherwise (4) both parties accept the verdict  $v^M$ , the social game without exclusion is played and the payoffs of all parties are determined.

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

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

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

Thus,  $M$ ’s utility is

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

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

The preferences over possible verdicts are given by  $u^R(1 - v)$  for the rich type, and by  $u^P(v)$  for the poor type, and  $u^R(\cdot)$  and  $u^P(\cdot)$  are increasing and concave. The concavity of the function ensures that

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

Now, we can write the utility to each type of individual from choosing the formal or informal court to settle a dispute. For the rich type, the expected utility from choosing the formal court equals  $Eu^R(1 - v^F) - c^R$ , the utility from choosing the informal court (without  $P$  going to the formal court) equals  $u^R(1 - v^M) + Q(A) - C^R(A)$ , while the utility from choosing the informal court (with  $P$  going to the formal court) equals  $Eu^R(1 - v^F) + Q(A_P) - C^R(A_P)$ .

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

### 2.3 Equilibrium

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

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

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

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

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

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

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

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

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

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

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

Now we can characterize the equilibrium more precisely.

The equilibrium outcome of the game is:

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

Situation (i) corresponds to the benchmark state in which the custom remains unaltered and the rich members of the community have their own way going. Note incidentally that, if they can use the modern law system to certify or officialise the rights granted them by the informal judge, we encounter the sort of undesirable situation (from an equity viewpoint) mentioned in Section 1. The most interesting state for the purpose of this paper is (ii) since the informal judge is bending his decision in favour of the poor under the

impact of the formal law: the custom evolves in a pro-poor direction. The opposite situation is depicted by state (iv) where the formal law forces the custom to evolve in a pro-rich direction when it was rather favourable to the poor in the initial situation.

## 2.4 Comparative Statics

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

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

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

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

The intuition behind these results is as follows (the proof is provided in Appendix B). As the formal court becomes more favorable to the poor agent, he has a stronger incentive to appeal the formal court while the rich agent is less inclined to do so. And vice versa as the formal court becomes more favourable to the rich agent. When there is more uncertainty about the verdict of the formal court, both agents are more reluctant to make use of it. Thus, other things being equal, a more radical statutory law increases the probability that the informal judge will be unable to retain the case within his jurisdiction: indeed, when both  $\underline{I}$  and  $\bar{I}$  are raised, it becomes more likely that  $\bar{v}$  will become smaller than  $\underline{I}$ . Note that, in a slightly different framework, if  $\phi$  decreases as a consequence of an increase in  $f$  because of increased uncertainty about whether the formal judge would obey the new law, there is still a strengthening of the bargaining position of the poor agent, i.e. an increase in  $\underline{I}$ . On the other hand, an increase in the cost of accessing the formal court discourages each agent from doing so and, therefore, expands the interval where the verdict of the informal judge is acceptable to both. A higher net benefit from the social game implies a higher opportunity cost of appealing to the formal court and thus expands the range over which a decision by the informal judge can prevail.

Note that the poor benefits from a pro-poor legal reform in the formal system even when this entails greater uncertainty about whether the formal judge would make rulings in accordance with the new law. As

long as the new law is followed in the formal court in some instances, the bargaining position of the poor is strengthened as a result of the legal reform.

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

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

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

The intuition behind these results is as follows. There are two factors that influence the informal judge's payoff from keeping the case in the informal court. First, the informal judge faces a trade-off between the cost of deviating from his preferred verdict and the loss in terms of prestige from having the case judged in the formal court. When  $X$  is larger, the informal judge has a greater incentive to act as the final arbiter for a dispute himself, and therefore, he is willing to propose a solution further from his preferred verdict. More rigorously, if  $\bar{v} < \underline{I}$  and  $I < \underline{I}$  in the initial situation and the increase in  $X$  is significant enough to cause  $\bar{v}$  to overstep  $\underline{I}$ , the informal judge becomes ready to adapt his ruling so as to keep the poor claimant within the customary jurisdiction.

Second, there is a loss to the informal judge whenever either party is excluded from the community. Since an individual will go to the formal court if he is not satisfied with the decision of the informal judge, and thus face exclusion, the latter will accommodate him if the cost of deviating from his preferred verdict is not too great. As the cost of excluding someone from the social game becomes higher, the informal judge is again willing to deviate further from his preferred verdict to avoid this exclusion.

## 2.5 Extension: Heterogeneity in the Severity of Disputes

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

Formally, to express this idea, we characterise any dispute according to a parameter  $\gamma \in [1, \gamma_{\max}]$  and rewrite the utilities obtained by the poor and the rich from a specific verdict  $v$  as  $\gamma u^P(v)$  and  $\gamma u^R(1-v)$

respectively. We denote by  $H(\gamma)$  the distribution of the severity of disputes. For notational simplicity, we abstract away from the payoffs of the social game. This will not qualitatively affect the results in this section. Then, the critical values  $\underline{I}$  and  $\bar{I}$ , are given by the following equations:

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

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

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

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

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

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

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

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

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

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

### 3 A Dynamic Framework where Community Size Matters

In this section, we investigate the actions of the informal judge and the disputants when the value of the social game and/or the prestige associated with mediating a case (denoted by  $X$  in the model) depends on

the current size of the community, and thus on how many people have already been excluded.

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

We rewrite the value of the social game for each individual as  $Y(n) = Q(n) - C(n)$ , where  $n$  is the current size of the community. We assume that  $Y(n)$  is increasing and concave, such that the value of social inclusion is increasing in the size of the community. We also assume that the prestige of the informal judge is a function of the size of the community,  $X(n)$ . We assume that  $X'(n)$  is positive, such that there is a loss in prestige, whenever an individual exits the community. In addition,  $X''(n)$  is negative, such that the loss in prestige increases with each exit.

In any period, a fraction  $\delta$  of the population is engaged in disputes. Each such dispute will involve one rich and one poor individual. If both parties are members of the community, they will have the option of taking their case to the informal judge. If either party does not belong to the community, then the dispute may only be resolved in the formal court. The actions available to each player and the timing of events will be as described in section 2.2, with one exception. We shall assume that the informal judge is required to apply the customary law uniformly to all cases that are presented to him in any given period. Formally, the informal judge announces the ‘custom’  $v_t^M$  at the beginning of each period, and he is committed to apply consistently throughout the period.

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

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

Given  $n$  and  $v^M$ , we obtain a threshold value  $\bar{\omega}(n, v^M)$  at which the condition in (9) is satisfied with equality ( $\bar{\omega}$  is also a function of  $c^P$ ,  $f$  and  $\phi$ , as defined in the previous section but the notation is suppressed here for sake of legibility). That is, a person with outside option  $\bar{\omega}(n, v^M)$  is indifferent between choosing the

informal and the formal court to resolve a dispute. We let  $H(n, v^M) \equiv F(\bar{\omega}(n, v^M))$ . Then  $H(n, v^M)$  is the fraction of the population that is willing to remain under the customary system when the community size is  $n$ , and the declared custom is  $v^M$ . Furthermore, we define the function  $n^*(v^M)$  as follows:

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

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

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

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

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

However, note that  $v = v^M$  is endogenous to the strategy of the informal judge. Because the prestige of the informal judge is increasing in the size of the community, he has an incentive to deviate from the traditional custom if he is thereby able to retain people within the community. For simplicity, we shall consider the custom that maximises steady-state level of utility of the informal judge. This will not necessarily correspond to the optimal strategy, especially if disputes within the community are infrequent. However,

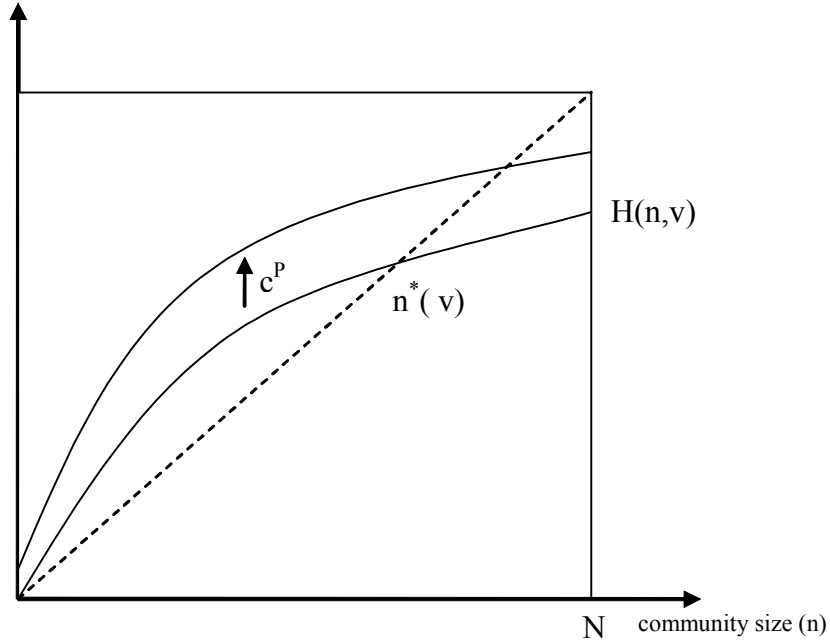


Figure 1:

if the steady-state is attained quickly because of frequent disputes and exits from the community, then the optimal steady-state choice should closely approximate the optimal strategy. In the appendix, we consider whether the equilibrium would be qualitatively different if the disputes within the community are infrequent. The custom that maximises the steady-state level of utility for the informal judge is given by

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

If we assume that  $f'(\omega) \leq 0$ , then the maximand in (11) is globally concave in  $v$ . Then the problem has a unique interior solution given by the following first order condition:

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

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

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

court for the poor; (ii) increasing in  $f$ , the mean of the verdict of the formal judge; and in  $\phi$ , the inverse of the variance of the formal verdict.

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

The proposition states that any change in the formal legal system (as described by the parameters  $c^P$ ,  $f$  and  $\phi$ ) that makes it more attractive for a poor individual to exit the community would also induce the informal judge to opt for a law or custom that is correspondingly more pro-poor. However, this shift in the customary law would not entirely offset the pull of the formal legal system. The poor would still opt for it in greater numbers and the community will reach its steady-state at a smaller value of  $n$ .

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

### 3.1 Effect of Inequality on the Informal Law

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

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

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

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

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

Given conditions (13)-(15), the distribution  $F_2(\cdot)$  describes a community characterised by higher inequality in the sense that (in its 'poorer' section) there are more individuals who have very strong outside options

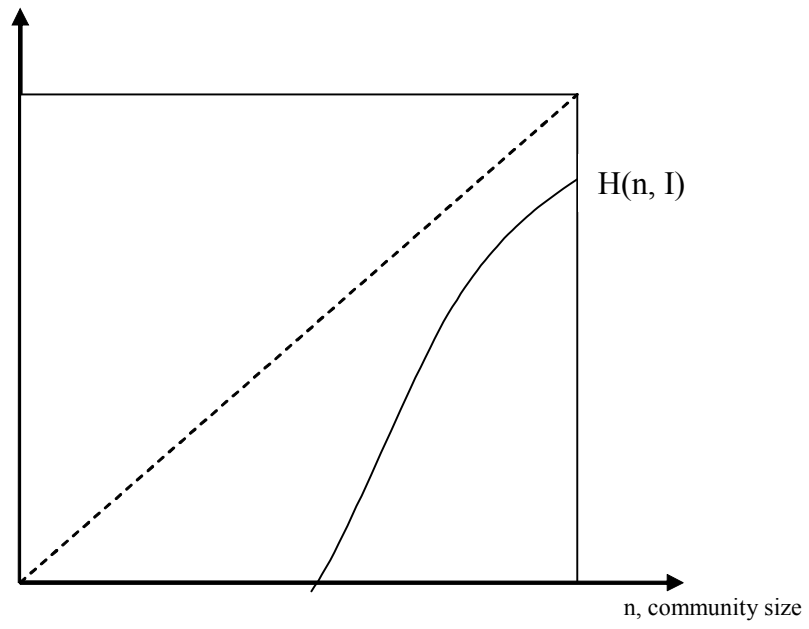


Figure 2:

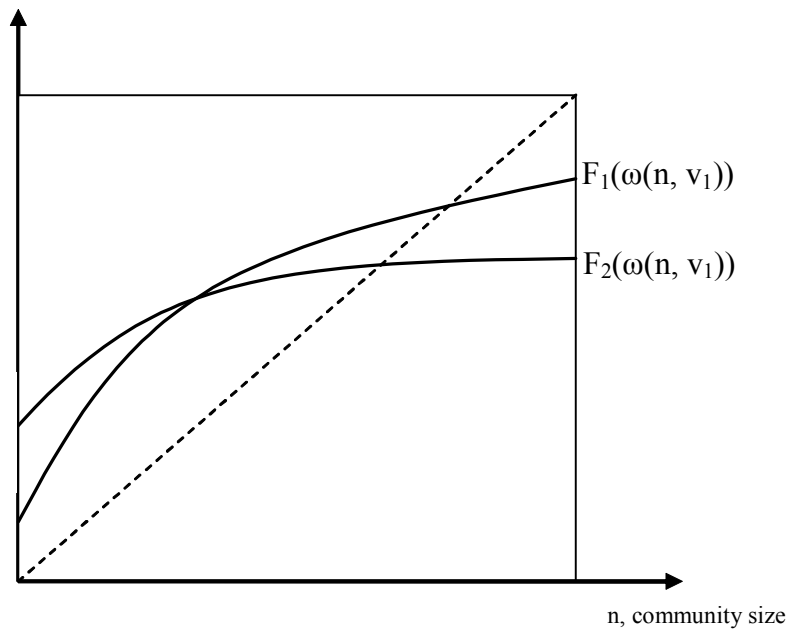


Figure 3:

and are inclined to exit even when the community is large; and also more individuals who have very weak outside options and remain within the community system even when the social exchange game has little value. With more individuals at extreme values, there are fewer individuals in the middle of the distribution. The assumptions in (16) ensure, as in the previous section, that the maximisation problem for the informal judge is globally concave.

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

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

where  $\eta$  is implicitly given by the equation  $F_2(\bar{\omega}(n_1, v_1) - \eta) = F_1(\bar{\omega}(n_1, v_1))^4$ . A change in the distribution of outside options from  $F_1(\cdot)$  to  $F_2(\cdot)$  can then be decomposed into (i) a ‘pivot’ around the initial steady-state at  $n_1$ , leading to the distribution  $\tilde{F}_2(\cdot)$ , followed by (ii) a parallel shift in the outside options of each person in the distribution, which leads to  $F_2(\cdot)$ . The decomposition is illustrated in figure 4 (included in Appendix C).

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

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

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

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

<sup>4</sup>Here and in the remainder of this section, the function  $\bar{\omega}(\cdot)$  is as defined previously, but with regard to the distribution  $F_1(\cdot)$  instead of  $F(\cdot)$ .

First, the ‘pivoting’ of the distribution of outside options tends to make the custom less favourable to the poor. Second, the shift in the distribution makes the custom more or less pro-poor, depending on whether the outside option of the individual who is indifferent between the two legal systems in the initial steady-state gains or loses in the redistribution.

Additionally, the pivoting of the distribution tends to lower the size of the community in the steady-state. A shift in the distribution that tends to make the custom more pro-poor also increases the steady-state size of the community and vice versa.

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

### 3.2 Welfare Analysis

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

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

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

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

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

Here, the three effects outlined above can be seen clearly. The term  $Y'(n^*) \frac{dn^*}{df}$  represents the loss in social welfare for each community member when someone is excluded from the community while  $\delta u'(v^M) \frac{dv^M}{df}$  is the gain to these same members from having a customary authority that is now more favourable to the poor. Finally, the term  $\delta \frac{dEu(v^F)}{df}$  is the gain for a poor individual who has already left the community.

Note that although the loss in the social exchange game increases with radicalisation, this loss is suffered by a smaller fraction of the population that remains under the customary authority. As a result, the net benefit in terms of social welfare from increased radicalisation of the formal law may always be positive. Intuitively, this case is more likely when the marginal gain from the social exchange game is inelastic to the size of the community. If this is true, then the optimal value of  $f$  will not necessarily be an interior solution.

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

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

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

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

We would obtain a corner solution if this expression is positive. Since we know from Proposition 4 that the informal judge never reacts enough to a legal reform to accommodate all remaining individuals within the community, we can show that  $\frac{dv^M}{df} < 1$ . Therefore, the second term in (19) is positive. Furthermore, if the elasticity of the marginal benefit of the social game with respect to the size of the community is sufficiently inelastic, then the first term is also positive<sup>5</sup>. Thus, we get the following result:

<sup>5</sup>Specifically, the first term is positive or negative depending on the sign of  $Y'(n^*) + n^*Y''(n^*)$ . We can conclude that if the elasticity of marginal benefit of the social game with respect to community size is below 1 then the entire expression is positive since

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

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

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

On the other hand, if the utility function is sufficiently concave and the net benefit from the social exchange game is sufficiently sensitive to the size of the community, the social welfare function is concave. If the social game is extremely valuable, or of little value, we may still obtain the result that abiding by the custom or a radical reform dominates a moderate reform. Otherwise, we will have an interior solution implying that the implementation of a moderate law is the optimal reform.

## 4 Applications

This section is made of two parts. In the first part, we present an example illustrating the main contention presented in Section 2, i.e. formal law can have an indirect influence on behaviour even if not explicitly activated. In the second part, we propose two additional illustrations in which the formal law is interpreted in a wider sense than has been done so far in the paper.

### 4.1 Formal laws and informal rules: the case of women's rights

In the Senegal river valley, all populations are Muslim and they have been so for several centuries. Indeed, islamization of these societies resulted from the colonisation of the (middle) valley by successive waves of foreign conquerors since the 10th century, and maraboutic power used the 1776 revolution 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). Incidentally, this observation runs counter to Timur Kuran's statement that in a matter such as inheritance that it addresses explicitly, the Qur'an carries an explicitly strong authority (Kuran, 2003, 2004).

In the above situation, women never thought of invoking the Islamic law to advance their interests lest they should antagonize their male relatives and be compelled to forsake key social protections that they have traditionally enjoyed. Under the customary land tenure system, indeed, women are insured against various

contingencies, in particular the prospects of separation/divorce, widowhood, and unwed motherhood. In such circumstances, they typically enjoy the right to return to their father's land where they are allowed to work and subsist till they find a new husband.(see, e.g., Cooper, 1997, pp. 62-63). In terms of our model, this means that the cost of appealing to the Islamic law (considered here as the formal law) and of resorting to the local marabout (considered here as the formal judge) was too high in terms of (insurance) benefits foregone in the social game for the formal channel to confer bargaining power upon rural women. Moreover, the psychological cost of taking a land dispute to the formal judge was also perceived to be large insofar as, in the women's view, open disputes between close kin "are to be avoided at all cost"(Cooper, 1997, p.79).

Over the last decades, however, as shown by a study of sixteen villages located in the delta area (department of Dagana) and the middle valley (departments of Podor and Matam), the cost of being excluded from the social game has fallen as a result of an increase in women's education and an expansion of non-agricultural employment opportunities for them (Platteau et al., 1999). Moreover, it appears that women who have completed their primary schooling and those who have a non-agricultural occupation (even after excluding marketing of agricultural products) have a tendency to manifest their opposition against customary practices that limit their freedom in fertility and marriage decisions. In particular, there is a statistically significant and positive correlation between women's education and participation in non-agricultural income-earning activities, on the one hand, and the claim that women have a right to decide the number of their children, or expression of aversion to the custom of levirate (whereby a widow is remarried to the brother of her deceased husband), on the other hand. Whether such opinions were formed as a result of educational or employment experiences, or are intrinsic characteristics of women who have chosen to be educated or employed in non-agricultural activities, does not really matter. What is important is that, at least, educational and employment opportunities enable the more progressively-minded women to reveal (or assert more strongly) preferences that they would have otherwise concealed. Although the study did not measure the proclivity of (progressive) women to call customary inheritance practices openly into question or to invoke the Islamic law, it is interesting to note that the custom has recently evolved toward enhancing women's rights.

There is no evidence, though, that the custom has adopted the Islamic prescription according to which daughters should inherit half of their brothers' share. Instead, what we find is an evolving practice of transfers aimed at compensating women for their de facto exclusion from inheritance of a portion of their father's land. The same phenomenon has been actually observed in Niger where Cooper (1997) describes cases where women, in recognition of their ownership rights, receive part of the crop harvested on some portion of the family land by their brothers under an arrangement known as *aro* (p.78) This said, women's access to land often remains fragile and difficult to secure: owing to their absence from the native village following marriage, they find it typically difficult to exercise whichever rights over land might have been

granted to them, all the more so as their male relatives are ready to exploit the situation (ibidem, p.81).

This explains why, in fieldwork, it is so difficult to obtain precise information about the extent of women's rights as well as about the amount and regularity of unilateral transfers received from their brothers. Another reason lies in the fact that male respondents are obviously embarrassed when their un-Islamic behaviour is pointed to them. This embarrassment reflects the potential impact of the formal law even when it is not actually followed. As is evident from the above story, such potential impact is manifested in the gradual transformation of the custom in a direction favourable to women. The ultimate cause of this transformation is the emergence of valuable exit opportunities that have the effect of decreasing the cost of women's exclusion from the social game. To put it in another way, the expansion of education and non-agricultural employment opportunities for women provides them with new fall-back options that diminish the importance of traditional social protection mechanisms in the event that they fall under distress due to separation, widowhood, unwed motherhood, etc.

There is another lesson to draw from the above illustration. The Islamic provision regarding women's inheritance, which dates back to the times of Muhammed, conflicts with the institutional logic of patriarchal societies and, as such, was a revolutionary ruling adopted with a view to creating a more just and equal society. To the extent that the patriarchal logic has become gradually ill-suited for the purpose of economic development, the Qur'an can also be seen as pulling the custom in an efficiency-improving direction. Even though its provisions are not strictly abided by, the role of the formal law appears to be that of a magnet that triggers institutional changes which enhance equity and/or efficiency. This role is performed through a bargaining effect: "A stronger legal status does not automatically afford women more independence but it may provide a strong bargaining position" (Hillhorst, 2000, p. 195).

As we know from Section 2, the outcome in which the formal law serves as a magnet that causes the custom to evolve is only one possible equilibrium. For that equilibrium to obtain, it is essential that the outcome for which the claimant is ready to relinquish her threat to resort to the formal court is not too distant from the preferred verdict of the customary authority. It may well be the case, however, that the bargaining strength of the claimant has become so strong that the customary authority will not deem it worthwhile to deviate from its preferred verdict. This is especially likely to be the case in urban areas. There, indeed, women's organizations often operate to defend women's rights by advocating legal reforms, conscientizing women, and supporting their efforts to appeal to the formal law. In terms of our model, the work of these organizations causes a fall in the cost of appeal to the formal law ( $c^P$ ) with the result that the threshold level below which the claimant decides to go to court is raised. This effect compounds the influence of the wider availability of exit opportunities for women in urban environments. As one of us (J.P. Platteau) could observe in Dar Es Salaam, thanks to the intense activities of women's organizations, an increasing number of women do not hesitate to appeal to the formal law in order to defend their rights.

In the Sahel, the gradual transformation of the custom regarding women's rights to initiate a divorce can be well understood in the light of the above discussion. In the initial situation, divorce is not readily granted to a wife wishing to leave her husband except in the case of proven mistreatment by the latter (Kevane, 2004; Platteau et al., 1999). Over recent years, however, women have progressively acquired a de facto right to leave an unhappy union. There are two main reasons. First, the severity of social sanctions against leaving an arranged marriage has diminished, to a large measure as a result of continued migration to neighbouring countries such as Côte d'Ivoire. Second, there is the effect of administrative pressure "as successive regimes continue to push for explicit legal rules and rights for women in marriage" (Kevane, 2004, p.75; see also Jewsiewicki, 1993). It is interesting to notice that, in Burkina Faso, the first factor has operated more powerfully in the relatively egalitarian society of the Bwa than in the rigidly hierarchical Mossi society. As a consequence, the incidence of divorces initiated by women is much larger today among the former than among the latter (Kevane, 2004, p. 75).

In rural areas subject to acute land pressure, such as in areas with good access to water and high population growth, the situation that obtains is often much less favourable to women than the one discussed above in the case of Sahelian countries. There, instead of improving exit opportunities for women, it is the scarcity-induced evolution of the custom in a direction contrary to their interests (in terms of our model, the value of  $I$  moves closer to zero) which induces them to have recourse to the formal law. Scarcity of land assets tends, indeed, to undermine women's customary rights of access, making them more vulnerable, especially after the death of their husband. In Uganda, for example, the Federation of Women Lawyers (FIDA), reported that 40% of the cases they handled were related to the harassment of widows and property grabbing by their husbands' relatives (Bikaako and Ssenkumba, 2003, p. 250). In the Luwero and Torero areas, 29% out of a total of 204 widows indicated that property was taken from them following the death of their husbands. In Zambia, 41% of female-headed households with orphans indicated that they had lost all their cattle and 47% had lost all their pigs (cited from Joireman, 2007, pp. 20-21). In Niger, half of the women living in the city of Maradi and who inherited land from their fathers lost that land as a result of some action (sale or appropriation) by their brothers (Cooper, 1997, pp. 81- 82). As noted by S.F. Joireman, "if land is valuable, or a woman has property left by her husband that is viewed as valuable, she may find herself cast off with no land to farm and her household goods appropriated by members of the lineage" (ibidem; see also André and Platteau, 1998, and Verma, 2001, for evidence regarding Rwanda and Kenya, respectively)<sup>6</sup>.

Women are not the only social group which can be considered as discriminated against under the customary system of land tenure in SubSaharan Africa. Immigrants form another such group whose rights turn

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<sup>6</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 as well (Cooper, 1997, pp.82-89).

out to be quite precarious when land pressure becomes acute (Platteau, 2000, Chap. 4; . . .). In the Côte d’Ivoire where such circumstances have sparked extreme tensions which degenerated into wild expulsion of foreign immigrants (mainly Burkinabé), the state eventually passed a law (Law N° 98-750, 23 December 1998) that declares lands cultivated by immigrants to be state land leased to them for a period of 99 years (Aka, 2007). Here is a vivid illustration of how the formal law can force customary practices to evolve in conditions where they are both inefficient (since immigrants are dynamic farmers) and inequitable. The Ivorian state was successful because it did not choose too radical a solution: stopping short of granting full private property rights to immigrants, it conferred upon them an ownership status (long-term use rights) that is more acceptable to village communities because it is part of a tradition inherited from colonial and post-independence times (bare ownership of rural lands is vested in the state). As a result, the situation was stabilised. In terms of our model, a more radical pro-immigrant law provision would have stirred up so much opposition and resentment among the indigenous population that its predictability would have been seriously impaired and the bargaining power of immigrant farmers undermined rather than enhanced<sup>7</sup>

## 4.2 An extended application to radical choices between complete rule systems

The literature on legal pluralism often stresses the opportunistic behaviour of individuals, especially the most educated and best politically connected ones, when choosing their reference system of rules: they tend to shift from the modern law to the customary rule, and vice-versa, depending on where their interest lies in particular circumstances (Crousse, Le Bris and Le Roy, 1986; Le Bris, Le Roy and Leimdorfer, 1983; Lavigne Delvigne, 1998). There is no such opportunism, however, when a person adopts one rule system as a whole instead of picking up whatever ingredient suits him best in all the systems available. This is a much more dramatic shift because the person now calls a whole set of often interdependent rules and norms into question by opting for a competing system. Two illustrations come to mind here, viz. religious conversion and permanent migration.

When a villager decides to abandon his (her) animist beliefs by converting to a monotheist religion, he (she) manifests a willingness to break with the past and to opt for a new life based on radically different norms and rules of behaviour. One possible motive for such a dramatic move is the desire to escape a number of important restrictions imposed by the custom, in particular, the moral and social proscriptions against self-enrichment. They then become ‘native outsiders’ who symbolically adopt a kind of ‘stranger’ status which has the effect of placing them effectively under an alternative set of obligations and linking them to a spiritual community whose members encourage private accumulation and economic experimentation whilst

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<sup>7</sup>What we have offered above is obviously suggestive evidence rather than a rigorous test of the theory. In order to have a satisfactory empirical test, one would need to disentangle the influence of the modern law on the custom from other influences born of economic, demographic, and ecological changes (population growth and increased market integration, in particular). This is bound to be a difficult enterprise since it would require the occurrence of a legal shock unaccompanied by other changes potentially bearing upon the custom, and availability of relevant information about the pre- and post-shock situations.

providing resources such as technical knowledge, credit or labour (Hagen, 1975, p. 279; Kennedy, 1988, pp. 141-42). In the new spiritual community, emphasis is put on virtues of self-restraint and consumption moderation (e.g., abstaining from drinking alcohol and gambling) and on the need to concomitantly do away with traditional feasts where lavish expenditures on food, drinks, and other goods are typically incurred.

In most cases, it is conversion to Islam or Christianity that provides the necessary escape from community loyalty. For example, among the Fra Fra people from northern Ghana, when successful individuals are unwilling to share their profits generously with members of their ethnic group and they are simultaneously keen to avoid the grave accusation of being 'swindlers', they choose to convert to Islam or Christianity or, else, they have to move to impersonal urban settings (Hart, 1975). In the Serenje District of Zambia, entrepreneurs often become Jehovah's Witnesses who "have little interest in traditional status criteria and espouse an ethic which emphasizes the spiritual and moral dangers of associating too freely with non-believers, even if kin,..." (Long, 1970, p. 139). In short, they are provided with religious justification, spiritual protection and practical assistance in their struggles to disentangle themselves from the demands of their matri-kin. As a result, they are better able to concentrate on building up their business and cater for their nuclear family interests (Kennedy, 1988, p. 142).

In Burkina Faso, a dynamic individual who had converted to the Pentecostal church expressed the view that: "If people see that someone is going to fare better, they use magic tricks to kill him, and this is something that inhibits our development because jealousy is great... there are those who want to harm me, but I also know that, thanks to my love for God, they are made powerless since the power of God surpasses that of the evil local spirits" (Fancello, 2006, p. 124). Conversion to Islam or to God's Assemblies also proved to be the most effective weapon available to a youth group who wanted to embark upon a development project in their (burkinabé) village but were subject to threats of magical attacks manipulated by local elders (Laurent, 1998, pp. 108-9; 2003). Among the Orma pastoralists living near the Tana River (Kenya), likewise, it seems that the first shopkeepers and traders were young Islamic converts who chose to challenge the authority of the elders and who found in Islam codes of law and behaviour particularly conducive to sound business relations (Ensminger, 1992, pp. 48-62). Poewe (1989) offers a similar analysis of the motives underlying the spread of evangelical churches in Zambia (see also Shillington, 1989).

Compared to the situation of an idiosyncratic choice between a specific formal law and a specific informal rule, a situation of radical choice between two complete rule systems has an important consequence. Because of the existence of an alternative community ready to accommodate new converts, the cost of exclusion from the social game is expected to be lower for the deviant member of the community. In other words, religious conversion enables an individual to simultaneously adopt a new system of rules and to enter into a new social network. In addition, because what is at stake now is a whole adherence to a new set of interdependent rules rather than piecemeal rule selection, the value assigned to a favourable outcome is much larger (parameter

$\gamma$  in our model is higher). To counter these two forces and prevent dynamic individuals from opting out of the customary system, the latter must undergo a drastic transformation. If the cost of losing a case for the customary authority is high when radical departure from the informal law system is contemplated by a member of the city, the required evolution of the custom might actually take place. The pervasive incidence of acts of conversion to Islam and Protestant sects in SubSaharan Africa nonetheless indicates that a new equilibrium of the customary system does not necessarily come into being.

Furthermore, the apparent multiplication of these acts during recent decades (see, e.g., Laurent, 2003) suggests that some determinants of their profitability have actually changed. There are at least two plausible factors which have contributed to this evolution through a lowering of the cost of religious conversion. First, the increasing proselytizing activities of Christian sects and Islamic sodalities have helped reduce the cost of estrangement from the native community. Second, growing exposure to market opportunities following economic liberalization policies has raised the value for risk-taking rural entrepreneurs of being freed from customary norms emphasizing the status quo.

Permanent migration, especially to urban environments, offers another way of escaping customary restrictions on capital accumulation and self-enrichment, as well as norms regarding civil matters such as marriage. Indeed, by settling down in a city and severing ties with the original family, rural dwellers place themselves under a different set of norms and rules. For example, they are now free to choose their spouse, to end an unhappy union, to live and consume in the way they want, and to escape demands from the extended family on their incomes. It is revealing, in this regard, that African urban entrepreneurs tend to avoid building family enterprises and to use kinship ties in business relations (Nafziger, 1977; Kennedy, 1988, Chap. 7; Fafchamps, 2004, Chaps. 5, 9; Platteau, 2007). Unlike Asian and Levantine entrepreneurs, African entrepreneurs have to build their network anew, typically from interaction among simple business acquaintances and through socialization outside of work.

Therefore, a major difference between permanent migration and religious conversion is the following: whereas the latter strategy automatically provides the individual with both a new system of rules and a new social game, the former supplies new rules but the new social game is to be constructed. As a consequence, the cost of exclusion from the village social game is significantly larger for a migrant than for a religious convert. Owing to the relatively smaller bargaining power of the would-be migrants, it is possible for the customary system of rules to evolve in such a way as to dissuade them from migrating and severing their ties with the native community. One thus encounters many instances in which rural elders gradually accept a relaxing of customary principles –allowing greater freedom in the choice of marriage partners and disposal of income, and allowing access to individual plots of land– as the price to pay for keeping the youth in the fold.

## 5 Conclusion and final reflections

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

In our framework, it must be stressed, the enacting of a new law, say as part of a land reform policy, may actually yield multiple outcomes. Thus, if the new law aims at advancing the interests of marginal sections discriminated against by the custom, (i) it may not be called for while the custom remains in force, unchanged; (ii) it may not be called for but the custom evolves in the direction pointed by the modern law; and (iii) it may be invoked by the targeted beneficiaries who thereby escape the customary law. Whether one or the other of these outcomes obtains depends upon several factors foremost among which are litigation costs when using the formal court system, the cost of exclusion from community exchanges, the importance attached by customary authorities to keeping their people within the fold, the extent of unpredictability of the modern judge's verdict, and the gap between the formal law and the custom. In particular, a more radically pro-poor legislation increases the likelihood of outcome (iii) over (i) and (ii). However, starting from a situation in which the custom prevails exclusively, and comparing the impact of two statutory laws, one more and the other less radical in its pro-poor orientation, we cannot be certain that the poor will necessarily benefit from a more radical legal reform. Indeed, if the proportion of judges who apply the new law is decreasing in the extent to which it differs from the custom, then the poor may possibly derive greater benefits from a more moderate legal reform.

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

is measured in terms of the severity of disputes rather than in terms of individual-specific values of outside options, the conclusion reached (within our static framework) is that the more severe the dispute the more likely it will end up being judged in the modern court. In addition, the fraction of disputes that are resolved in this manner is increasing in the distance between the statutory and the informal laws.

Illustrations provided in the field of land rights suggest that, together with exogenous forces emanating from the broad economic/ecological environment, factors corresponding to various parameters of the model seem, indeed, to play a major role in determining the evolution of customs and recourse to modern judges. Pointing to a growing influence of the modern law, through induced evolution of the custom in a pro-poor direction and a rising occurrence of litigation cases in the formal court system, are the falling cost of access to this system thanks, in part, to the more active role of NGOs and civil society movements, as well as the expansion of outside opportunities which have the consequence of reducing the benefits drawn from participation in community-based networks. Changes in the surrounding circumstances that result in increased competition for land have a different effect, however. They cause a regressive shift in the “preferred judgement” of the customary authorities so that the equilibrium value of the customary verdict bends more towards the rich, thus encouraging the poor to increasingly appeal to the modern law in defence of their interests.

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

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

## 6 Appendix A

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

The timing of events in this case is as follow: (1) the institutions of the formal court are set; (2)  $P$  decides whether to bring the case to the formal court ( $F$ ); if she chooses  $F$ , the community excludes her, the social game without  $P$  is played, and the payoffs of all parties are determined; otherwise (3)  $R$  decides whether to bring the case to the formal court ( $F$ ); if she chooses  $F$ , the community excludes her, the social game without  $R$  is played, and the payoffs of all parties are determined; otherwise (4)  $M$  chooses verdict  $v^M$ , the social game without exclusion is played and the payoffs of all parties are determined.

### 6.1 Equilibrium

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

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

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

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

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

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

Thus,  $R$  brings the case to the formal court iff

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

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

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

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

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

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

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

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

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

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

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

## 6.2 Comparative Statics

The bounds  $\underline{I}$  and  $\bar{I}$  are described in exactly the same way as in section 2.3. Therefore the comparative statics results described in Proposition 1 also apply to the equilibrium described above, for the case where the decision of the informal judge is immediately put into effect.

## 7 Appendix B

The proofs of propositions 1 - 5 are provided here.

**Proof.** of Proposition 1: The threshold condition (20) can be written as:

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

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

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

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

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

Similarly, rewriting (21) as

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

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

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

■

**Proof.** of Proposition 2: Rewrite (3) as

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

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

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

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

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

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

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

■

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

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

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

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

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

Then we can determine the sign of the expression  $\frac{\partial}{\partial |f-I|} \gamma(f)$  as follows. If  $f < I$ <sup>8</sup>, then

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

If  $f > I$ , then

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

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

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

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

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

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

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

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

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

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

---

<sup>8</sup>Since the formal law is more favourable to the rich individuals than the informal law, they are the critical agents whose decision matters for the informal judge.

That is,  $v$  is the least-costly verdict for the informal judge (when the formal law favours the poor) that leads to a steady-state community size of  $n$ . Then, it is straightforward to establish that the solution to the maximisation problem in (11) corresponds to the one below<sup>9</sup>:

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

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

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

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

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

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

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

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

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

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

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

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

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

Note that if the steady-state is attained for some  $n = n^*$ , we must have  $1 - f(\bar{w}(\cdot))Y'(n) > 0$ <sup>10</sup>. Therefore  $\frac{\partial v}{\partial n} > 0$ . Then, since  $g'(\cdot) > 0$ ,  $g''(\cdot) > 0$ , the expression in (26) is positive. Therefore, applying Topkis'

<sup>9</sup>To see this, note that the function  $v(n)$  defines a monotonic relationship between  $v$  and  $n$  and  $v^{-1}(\cdot) = n(\cdot)$ . Therefore, if  $n = n^*(v^{M*})$ , where  $v^{M*}$ , as defined in (11), does not solve the optimisation problem in (24), there is an alternate value of  $v$  given by  $v(n^*)$  at which the maximand in (11) attains a higher value than at  $v^{M*}$ . This would contradict the definition of  $v^{M*}$ . Therefore, the solutions of the two maximisation problems must coincide.

<sup>10</sup>The reason is as follows. By definition, for all  $n$  above the steady-state value  $n^*$ , the curve  $H(n, v)$  lies below the 45-degree line. Therefore,  $\frac{d}{dn}H(n, v)|_{n=n^*} < 1$ . Since  $\frac{d}{dn}H(n, v) = f(\bar{w}(\cdot))Y'(n)$ , we obtain

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

theorem, we obtain the result that  $n^*$  is increasing in  $c^P$ . Using similar reasoning, we can show that  $n^*$  is decreasing in  $f$  and  $\phi$ . ■

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

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

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

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

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

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

## 8 Appendix C

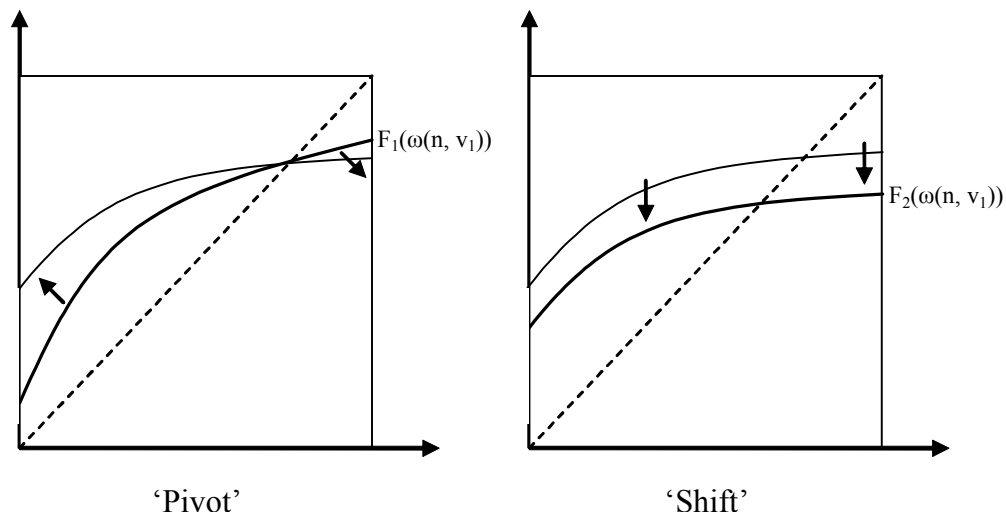


Figure 4:

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