

**THE KIN SYSTEM AS A POVERTY TRAP?**

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Throughout history, poor rural households facing endemic risks and lacking insurance and credit markets have come together in social, ethnic, and occupational groups to provide economic assistance to each other. In many instances, group members are relations by birth, marriage, and/or ethnicity – this is the ‘extended family system’ (‘kin system,’ for short). In other cases, group members are households in similar occupations living in close proximity, e.g., fishermen in small marine villages in India, where membership is more fluid. Platteau and Abraham (1987), Fafchamps (1991), Udry (1994), and Fafchamps and Lund (2003) describe a variety of mutual assistance groups in developing countries, while Stack (1974) describes such groups in a poor urban community in the United States.

In this chapter, we focus on the economic effects of the institution of *kin system* in a modernizing society. The kin system has been described by Charles Wolf (1955) as “a system of shared rights and obligations encompassing a large number of near and distant relatives.” Following that definition, we view the kin system as a social contract of mutual assistance among members of an extended family. It is quite clear that in rural, predominantly non-market, economies, the kin system is a valuable institution providing critical community goods and insurance services in the absence of market or public provision of such goods and services.

But what happens when the market sector grows in the process of economic development? How do the members of kin groups respond, individually and collectively, to such changes? Does the kin system act as a ‘vehicle of progress’ helping its members adapt to the expanding modern economy, or does it act as an ‘instrument of stagnation’ holding back its members from benefiting from market development? These questions are important because during the process of economic development, there is a long time interval (typically many decades) during which relation-based institutions like the kin system exist side-by-side with market institutions,

and the co-existence of these two institutions of exchange has complicated consequences for the welfare of poor citizens.<sup>1</sup> A large amount of anecdotal evidence, discussed below, suggests that kinship ties may have an adverse impact on the welfare of individuals seeking to enter the modern sector of a developing economy. In this chapter, we formally explore the question of whether, during economic transition, the kin system can become a *poverty trap* for its members.

In our analysis, we address the following issues that typically arise when the kin system ‘meets’ the modern economy. If a kin member achieves economic success in the modern sector, he is invariably besieged with demands by his less successful kin to help them out – by remitting money, finding urban jobs for them, letting them stay in his city home, and so on. The need to meet such demands can adversely affect the incentives of kin members in the modern sector. When modern sector employers foresee these problems, the kin members face an *entry barrier* to the modern sector.

In such a scenario, a kin member’s response may be to demonstrably sever his kin ties, if he can (although presumably at a substantial psychological cost), in order to improve his modern sector opportunities. That possibility can lead the kin group to respond in a perverse way. If the kin group foresees that it will lose some of its most productive members as the economy opens up, it may take collective actions *ex ante* to erect *exit barriers*. If that occurs, then the kin system – that was once a beneficial arrangement – will become a poverty trap, at least for its most productive members.

We do not contend that the kin system must necessarily lead to this dismal outcome. It is possible to think of an alternative scenario: Early migrants to the modern sector do not renege

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<sup>1</sup> In the context of moral hazard and insurance, Arnott and Stiglitz (1991) explore the welfare consequences of the co-existence of market and non-market institutions. Recently, Dixit (2004) has modeled economic development as a movement from relation-based to rule-based governance.

on their kin obligations (even though they face hurdles to entering the market economy) but indeed facilitate the migration of other members; and the kin group, recognizing the long-term benefits from having economically successful members in the modern sector, facilitates the process of integration. If that happens, the kin system will turn out to be a beneficial institution not only in the pre-modern economy, but also during the process of transition to a modern economy. It will be a case where the institution adapts in response to structural changes in the economy in a way that benefits all its members – a case where “social customs follow the money,” as some sociologists put it.

However, we show that the kin system can become harmful to all (or at least a majority of) its members in the process of modernization and nevertheless fail to be dismantled by its members. As Akerlof (1976) has argued in analyzing the caste system in India, an important reason for this is the presence of network effects that cause a *coordination failure* in individual decisions.<sup>2</sup> In studying the behavior of kin group members facing a modern economy, we identify the nature of the network effects that may cause them to take collective decisions that are *ex ante* inefficient. Our formal analysis delineates conditions under which the kin system will (or will not) become a *dysfunctional institution*.

The rest of this chapter is organized as follows. We begin by presenting a view of culture as a set of control mechanisms through which a kin group can enforce mutual assistance arrangements. We document anecdotal evidence of the experiences of members of kin systems when they face expanding market opportunities, and indicate how the evidence relates to the formal analysis that follows. We then formalize the entry barriers that kin members may face

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<sup>2</sup> A long line of work starting with Rosenstein-Rodan (1943) has emphasized the role of coordination failure in explaining why certain countries or social groups remain poor. See Ray (1998, ch. 5) and Hoff (2001) for surveys of this literature.

in trying to succeed in the market economy; we present two examples – one of workplace nepotism, and the other of home-sharing by kin members. Next, we study a simple model of kin migration between a traditional rural sector and a modern urban sector, and delineate the different kinds of network externalities that arise from migration. We identify the nature of the inefficiencies and coordination problems inherent in migration equilibria, and go on to study the *ex ante* collective response of a kin group to increased migration opportunities. It is in this context that we show that a kin group can take perverse actions to raise the costs of migration for individual members and, consequently, hold them back in a poverty trap.

### **The Kin System Facing Economic Change**

In many pre-modern societies, the kin system has had significant power to circumscribe the behavior of its members. In effect, the kin system placed its members within a culture where, following Clifford Geertz's definition, "culture is best seen not as complexes of concrete behavior patterns ... but as a set of control mechanisms – plans, recipes, rules, instructions ... for the governing of behavior" (quoted in Becker, 1996). We highlight this fact as a counterpoint to the view that informal mutual assistance arrangements are intertemporally sustainable only if they are equilibrium strategies in an infinitely repeated game (see, *e.g.*, Coate and Ravallion, 1993). We emphasize that, historically, kin systems have had at their disposal an elaborate set of social sanctions to enforce and sustain a mutual assistance ethic.

According to Scott (1976) and Platteau (1991), in cultures where kin-based insurance arrangements are important (*e.g.*, in Africa, the Philippines, and Vietnam), egalitarian norms and ethical values prescribing the right to subsistence are widespread. Sanctions for those who shirk the obligations of the kin system entail economic consequences (loss of employment

and/or the destruction of property), stigma, and social ostracism. Religious beliefs may also enforce social obligations, as the following description demonstrates:

“[I]n a celebrated Kenyan court case, a successful *Luo* man left a will specifying that he was to be buried by his wife in Nairobi rather than by his kin group in his home district. The kin challenged the right of the wife to conduct such a burial. The Kenyan high court overturned the will, siding with the kin group. This decision was important because the kin group’s ultimate sanction against recalcitrant members is to bury them near their ancestors, who can be expected to exact retribution. The Kenyan high court was upholding the social obligations inherent in kin group membership.” (Collier 2001, p. 298)

Modern kin groups are also able to create control mechanisms. In the kin system described by Stack (1974), African-American households in a low-income U.S. community enter into temporary child exchange as a symbol of mutual trust. The bonds that develop between adults and children reinforce the adults’ incentive to honor their commitments to the extended family.

While mutual assistance in kin groups takes a variety of forms, we focus on the following form of kin support: When a kin member enters the modern sector and achieves success, he is obligated to provide economic support to his less successful kin. This phenomenon is widespread among kin systems in developing countries, and has been frequently noted in Africa:

“Demands to provide jobs for a wide range of kin, irrespective of their qualifications, and requests for cash donations or gifts of varying amounts from a stream of ‘visitors’ are probably the most frequent claims [on businessmen in Africa.]” (Kennedy 1988, p. 169)

We argue that while it is possible to meet kin obligations by cash remittances, it may be in the self-interest of the successful kin members to satisfy such demands by making *in-kind transfers*, that might take the form of hiring kin in their firms or allowing them to share their city homes. As we discuss subsequently, this is the case when there are moral hazard problems in the modern sector. We thus provide an explanation for nepotistic behavior of kin members as a response to kin obligations, and formalize W. Arthur Lewis’s intuition:

“Where the extended family system exists, any member of the family whose income increases may be besieged by correspondingly increased demands for support from a large number of distant relations ... A strong sense of family obligation ... may cause a man to appoint relatives to jobs for which they are unsuited ... *it may be fear rather than affection* which drives them to nepotism.” (Lewis 1955, p. 114, emphasis added)

We show how such in-kind transfers may be inefficient and may adversely affect the employers and landlords of kin members engaged in nepotism. This leads to the following predictable response by the modern sector:

“The extended family system adds to the reluctance of foreign firms to employ members of the local population in positions of trust and responsibility.” (Bauer and Yamey 1957, p.66)

In many African countries, where there are strong kin systems, owners of large modern-sector firms are constantly concerned that employees in positions of power will engage in nepotism by hiring their kin as subordinates. For labor markets in Ghana, Collier and Garg (1999) document this phenomenon and study its implications for the wage distribution. The reluctance of firm owners in the modern sector to hire individuals who are viewed as participants in kin systems constitutes a hurdle to the entry and success of such individuals in the modern sector. This entry barrier, which we formalize below, is an important drawback of the kin institution in the face of growing market opportunities.

Decisions to migrate from the traditional sector to the modern sector are more complicated for a kin member than for an individual who does not belong to a kin system, for two reasons. First, he has to consider how migration will alter his costs and benefits of membership in the kin system. That will depend on how many kin members currently work in the modern sector, and on how many more are expected to migrate in the future. Second, he has to realize that his chances of succeeding in the modern sector may be limited by potential employers’ concern that he will engage in nepotism to meet kin demands.

As a response to this, the potential migrant may consider severing kin ties and assimilating into an alternative culture by adopting its religion and language. Platteau (2000) argues that this process has occurred all over the world, but that in some highly traditional societies,

“... principles of equity are so adverse to change [that] a single individual, even when endowed with special qualities and powerful psychological resources, cannot successfully defy the conventions of the society. He will unavoidably ... be squashed by various forms of opposition, especially when his economic success depends on his behavior as a hard-nosed businessman in dealing with fellow tribesmen. To break through, he needs the protection afforded by the deviant actions of a *sufficient number* of other innovators in his locality. Rising economic opportunities alone will usually not suffice to generate dynamic entrepreneurs in the absence of *a critical mass of cultural energies harnessed towards countering social resistance ...*” (Platteau 2000, ch. 15, emphasis added)

The above discussion emphasizes the *network effects* that exist in kin migration decisions. We incorporate these effects, especially the fact that migrants become better off when more kin members migrate, in a model of kin migration.<sup>3</sup> We then study the nature of inefficiencies that can be present in such migration equilibria: For one, too few members might migrate either because of the perceived barriers to entering the modern economy as a kin group member, or because of the high individual costs of severing kin ties while migrating. For another, too many members may sever kin ties while migrating simply because many others do so.

It is the first set of inefficiencies in the migration equilibria that indicate that a pre-existing kin system can be detrimental to individual welfare in the face of growing market opportunities. Furthermore, instead of adapting in a way that allows its members to gain from the new opportunities, the kin group may take collective actions to forestall the exit of its most productive members from the group. Such a perverse response of the kin group is documented by Carol Stack in *All Our Kin* (p. 114):

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<sup>3</sup> For related analyses of ethnic migration that recognize similar network effects, see Carrington *et al.* (1996), Munshi (2003), and McKenzie and Rapoport (2004).



“Me and Otis could be married, but they all ruined that ... They don’t want to see me married! Magnolia knows that it be money getting away from her. I couldn’t spend the time with her and the kids and be giving her the money that I do now. I’d have my husband to look after ... You think a man would put up with as many times as I go over to their house ... giving half my money to her? ... That’s why they don’t want me married.”

We formalize this idea by positing that the kin group as a whole can affect each member’s cost of exiting the group. We explore conditions under which, facing the possibility of members’ severing kinship ties and migrating to the modern sector of the economy, a kin group will take a collective *ex ante* decision to raise the individual exit costs to prevent the migration of the group’s most productive members. Our striking result is that at a point in time when kin members are yet to receive job offers from the growing modern sector of the economy, a majority of the members may prefer to engage in such exit deterrence, even when such behavior is welfare-reducing in the aggregate. It is this ‘collective conservatism’ of a kin group that can generate an inefficient *status quo* bias, and then the kin system does become a dysfunctional institution in the presence of an expanding modern economy that holds back (some of) the kin group members in a poverty trap.<sup>4</sup>

### **Kin Membership and Endogenous Market Barriers**

We consider the following simple model of an economy: The population is divided into two groups. The first group is a single kin system – each member of this group will be called a *K* agent. The second group is a set of independent individuals who are not bound by any kinship ties – the *I* agents. Further, the economy is divided into two sectors – the pre-modern rural sector and the modern urban sector. The *I* agents are located predominantly in the urban sector, while all *K* agents are initially located in the rural sector – that is where the kin system is

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<sup>4</sup> Kuran (1988) surveys different sources of such *status quo* bias and collective conservatism.

assumed to have developed. It is with the expansion of the modern economy that  $K$  agents find opportunities to migrate to the urban sector and gain market employment.

We study individual and collective responses of kin group members to market opportunities. We posit that each  $K$  agent has to abide by the following ‘kin ethic’: If he gets a ‘good’ job in the modern sector, then he has to make a pre-specified utility transfer to a particular household in his kin group that is less fortunate.<sup>5</sup> In this section, we present two examples that establish conditions under which a  $K$  agent will meet his kin obligations by making inefficient in-kind transfers.

Our first example is one of *nepotism*, in which the presence of a moral hazard problem in hierarchical modern-sector firms causes  $K$  agents to hire their kin as subordinates in a way that adversely affects firm profits. Recognizing this, modern sector employers will be reluctant to hire  $K$  agents in positions of authority if they are not allowed to offer the agents a lower remuneration as compared to  $I$  agents. In our second example of *home sharing*, the inability of landlords to monitor the actual number of people living in city apartments encourages  $K$  agents to share their homes with kin relatives, thus lowering the long-term value of the apartments. Recognizing this proclivity of  $K$  tenants, apartment-owners will be reluctant to rent to such individuals if they cannot charge them higher rents as compared to  $I$  agents.

In both cases, kin group members face barriers to entering the modern sector because of the possibility that they will subsequently engage in nepotism and/or make other inefficient in-kind transfers. Such a barrier can take the form of an outright denial of modern sector opportunities, or of the availability of such opportunities at substantially inferior terms.

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<sup>5</sup> We do not model how this kin ethic is enforced. It could be self-enforcing in a scenario of repeated interactions, or it could be enforced within the kin group by the threat of social sanctions.

## *Nepotism*

Consider a modern sector firm in which production requires a supervisor and a worker. Both are unionized jobs: the supervisor has to be paid a base salary  $s$ , and the worker a fixed wage  $w$ , with  $s > w$ . Profits are determined by the *match quality* between the worker and the firm. Firm profit is  $\pi_H$  if the match is good, while it is  $\pi_L$  if it is not, with  $\pi_H > \pi_L$ . *Ex ante*, only the supervisor can ascertain the match quality of the worker, and so the authority to hire the worker is delegated to him. If he *randomly* hires a worker from the population, the match quality will be good with probability  $\lambda_0 \in (0, 1)$ ; but if he expends search cost  $\sigma$ , he will find a good match with probability one.<sup>6</sup>

We assume that the firm cannot observe and/or verify the method by which the supervisor selects the worker, and that gives rise to a moral hazard problem. Given that the supervisor has to be paid  $s$  whether or not he searches for a perfect match, the firm can institute a bonus scheme under which the supervisor is paid  $s + b$  when  $\pi = \pi_H$ , in order to induce him to search. We now determine the optimal bonus for a supervisor who is an *I* agent (that is, an individual who is *not* a kin member).

For both *I* and *K* agents, let the individual utility function be  $[u(y) - e]$ , where  $y$  is the final income,  $e$  is the disutility from the chosen search effort ( $e$  equals  $\sigma$  or zero), and  $u(\cdot)$  is strictly increasing and strictly concave. Given a bonus  $b$ , an *I* supervisor will search if and only if

$$(1) \quad u(s + b) - \sigma \geq \lambda_0 u(s + b) + (1 - \lambda_0) u(s).$$

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<sup>6</sup> This simple model of a hierarchical firm with a stark search technology can be generalized in many ways. We can endogenize  $s$  by specifying an outside option for the supervisor, and we can make the search technology more realistic by assuming that more intensive search increases the probability of finding a better match. Our qualitative results will survive such generalizations.

So he will search if and only if the bonus is at least  $b^I$ , where  $b^I$  solves (1) with equality. The firm's expected payoff will thus be  $[\pi_H - s - b^I]$  if it offers the bonus  $b^I$ , and  $[\lambda_0\pi_H + (1-\lambda_0)\pi_L - s]$  if it offers no bonus. It is easy to verify that for any given values of  $\lambda_0$  and  $\sigma$ , if the profit difference  $(\pi_H - \pi_L)$  is large enough, it will be optimal for the firm to offer the bonus  $b^I$ . We assume this to be the case and conclude that the firm will offer the salary-bonus pair  $\{s, b^I\}$  to an 'independent' supervisor.

Next, we ask: if the supervisor *does* belong to a kin group, *i.e.*, if he is a  $K$  agent, how will he behave facing the same bonus scheme as above? As indicated above, the  $K$  agent is obligated to make a utility transfer to a specific household in his kin group. Let  $T$  be the *money equivalent* of the required transfer, *i.e.*, the  $K$  agent can satisfy kin obligations by remitting  $T$  in cash. But he may choose to make an in-kind transfer by hiring a member  $m$  of the household as a worker in his firm. If he does so, let  $\tau$  ( $< T$ ) denote the *remaining* cash transfer that he has to make. We assume that  $\tau \geq 0$ . Further, we suppose that the  $K$  supervisor assesses *ex ante* that if member  $m$  is hired in his firm, the match quality will be good with probability  $\lambda_m \in (0, 1)$ .<sup>7</sup>

Under the salary-bonus pair  $\{s, b^I\}$ , the  $K$  supervisor will obtain expected utility equal to  $[\lambda_m u(s + b^I - \tau) + (1 - \lambda_m) u(s - \tau)]$  if he engages in nepotism. On the other hand, if he decides to meet his kin obligations in cash, it will be optimal for him to search for the perfect match, in which case he will obtain the payoff of  $[u(s + b^I - T) - \sigma]$ . It is easy to check that if  $\lambda_m \geq \lambda_0$  and  $\tau = 0$ , then the former payoff is strictly greater than the latter: This is because, for a kin

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<sup>7</sup> Note that if, left to his own devices, member  $m$  has a positive probability of being hired as a worker in a modern sector firm, then  $\tau$  will be typically greater than  $(T - w)$ . Further, as the supervisor is expected to have *some* information about kin group member  $m$ , we allow the *ex ante* match quality to be different from  $\lambda_0$ . We abstract from all other features of the relationship between the supervisor and member  $m$  that could affect performance. These other features have an ambiguous effect on firm profits. Kinship might lower profits because discipline will be harder to impose, or raise profits because communication and transaction costs will be lower between kin than between non-kin.

member, the required transfer  $T$  depresses the payoff to search relative to the payoff when he does not search. The same ranking of payoffs will also hold under the condition that  $\tau$  is not too large and  $\lambda_m$  is not much smaller than  $\lambda_0$ .

This comparison leads to our basic result regarding the practice of nepotism: If member  $m$  is not significantly less likely to be a good match than a randomly hired individual, and if hiring him satisfies a large part of the kin obligations of a  $K$  supervisor, then a  $K$  supervisor will always engage in nepotism when working under the incentive contract that is optimal for an  $I$  supervisor. We can parameterize the extent of ‘nepotism inefficiency’ in the following way: For *any* bonus  $b$ , define  $\lambda(b)$  such that

$$(2) \quad u(s + b - T) - \sigma = \lambda(b)u(s + b - \tau) + (1 - \lambda(b))u(s - \tau).$$

Then a  $K$  supervisor, needing to meet kin obligations to the tune of  $T$  in gross and  $\tau$  in net, will engage in nepotism if and only if the *ex ante* probability of a good match by kin member  $m$  is greater than  $\lambda(b)$ . Note that  $\lambda(b)$  is strictly less than one for all finite bonuses  $b$  (and increases in  $b$ ), and is a measure of the maximal inefficiency that nepotism can lead to.

We make the plausible assumption that in expected terms, a randomly hired worker from the whole population will be a better match for the firm than a randomly hired worker from a particular kin group, *i.e.*, the expected value of  $\lambda_m$  is strictly less than  $\lambda_0$ . It is then easy to check that for *any* bonus  $b \geq b^l$ , expected firm profits will be greater when the supervisor is an  $I$  agent rather than a  $K$  agent. The profits in the former case will be  $[\pi_H - s - b]$ , while the expected profits in the latter case will be:

$$(3) \quad Prob\{\lambda_m \leq \lambda(b)\}[\pi_H - s - b] + Prob\{\lambda_m > \lambda(b)\}[E(\lambda_m \mid \lambda_m > \lambda(b))(\pi_H - \pi_L - b) + (\pi_L - s)].$$

This will lead to one of two responses by the firm's owners. They will either discourage the appointment of a  $K$  agent as a supervisor. Or, they will seek union agreement to *lower* the base salary of a  $K$  supervisor.<sup>8</sup> Note that there will exist a salary-bonus pair  $\{s', b'\}$ , with  $s' < s$ , that leads to the same level of expected profits from hiring a  $K$  agent as from hiring an  $I$  agent. In either case, a  $K$  agent will face a barrier (relative to an  $I$  agent) in getting a supervisor's job.

### *Home Sharing*

Recall our specification that the economy is divided between the pre-modern and the modern sectors. Suppose that the latter is located in the city, and that the former exists in the surrounding villages. All modern sector workers are required to reside in the city (*e.g.*, punctual attendance may require that workers have housing near their jobs). In addition, access to housing in the city is valuable to someone who lives in a village: it could save a student the cost of commuting to a school, or increase an individual's chance of finding a modern sector job.

Consider a modern sector employee who rents a city apartment. He can choose to share his apartment with others, thus facilitating their residence in the city. This possibility generates a moral hazard problem: Home-sharing causes a housing unit to depreciate at a faster rate, but a landlord may be unable to monitor it (*e.g.*, the law may bar him from making spot checks at night). Then he can only charge a lump-sum rent, independent of the extent of home-sharing by the tenant.

We posit that the utility of any modern sector employee  $j$  is  $[u(y) - c_j(n)]$ , where  $y$  is his final income and  $n$  is the number of persons with whom he shares his home. We assume that

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<sup>8</sup> A third solution is to bar the hiring of kin by supervisors. On the one hand, this rule will be hard to enforce. On the other hand, the rule can generate its own inefficiency: even when a  $K$  supervisor knows that his kin brother is almost a perfect match, he will be forced to engage in costly search.

$u(\cdot)$  is strictly increasing and strictly concave, and that the ‘disutility from home-sharing’ function  $c_f(\cdot)$  satisfies  $c_f(0) = 0$ , and is of the following form for  $n > 0$ : If individual  $j$  is an  $I$  agent, then  $c_I(n) = C^+ + nc^+$ , whereas if individual  $j$  is a  $K$  agent *and* if he shares his home with fellow kin members, then  $c_K(n) = C^- + nc^-$ , with  $c^+ > c^- > 0$  and  $C^+ > C^- > 0$ . This specification captures the plausible assumption that sharing one’s home with the ‘first outsider’ (and thus losing privacy) is less costly if the outsider is a part of the kin group within which a culture of sharing exists. For the same reason, the incremental cost of home sharing with additional outsiders is also less costly if the outsiders belong in the kin group. For a person located in the rural sector, let  $h$  be the money value of access to city housing.

First, consider an  $I$  agent working in the city. Let  $s$  be his salary and  $\rho$  be his rent. Suppose that he can charge  $h$  to every individual whom he allows to live in his apartment. Then his problem is to choose  $n$  to maximize  $[u(s - \rho + nh) - c_I(n)]$ .

Next, consider a  $K$  agent who receives an identical salary  $s$  and pays an identical rent  $\rho$ . This individual has kin obligations to meet, whose money value is  $T$ . If he allows  $n$  kin members to share his home, he will have made an in-kind transfer of  $nh$ . His problem is thus to choose  $n$  (from among his kin group) to maximize  $[u(s - \rho - (T - nh)) - c_K(n)]$ .

It is easy to see that since the marginal benefit of home-sharing is greater for a  $K$  agent as compared to an  $I$  agent, while the marginal cost is smaller, a  $K$  agent will share his apartment with a larger number of people than an  $I$  agent. Let  $n_I^*$  maximize  $[u(s - \rho + nh) - nc^+]$ , and let  $n_K^*$  maximize  $[u(s - \rho - (T - nh)) - nc^-]$ . Then, if the start-up cost difference  $(C^+ - C^-)$  is large and the residual cash transfer  $(T - n_K^*h)$  is small, it will be the case that  $[u(s - \rho + n_I^*h) - u(s - \rho) - n_I^*c^+] < C^+$  while  $[u(s - \rho - (T - n_K^*h)) - u(s - \rho - T) - n_K^*c^-] > C^-$ . In that case, while an  $I$  agent will not share his apartment with others, a  $K$  agent *will* make in-kind transfers in the

form of home-sharing to meet his kin obligations precisely when he can meet a large part of his kin obligations in kind.

This behavior of a  $K$  agent will have adverse consequences for his landlord. To a landlord, the cost of renting an apartment is two-fold. The first is the opportunity cost,  $\Delta$ , of his fixed capital and depreciation when the home is occupied by a single household. The second is the additional depreciation  $\delta(n)$  (with  $\delta'(\cdot) > 0$ ) when the tenant has  $n$  other persons living in the unit. Absent the ability to monitor, the landlord can charge only a lump-sum rent  $\rho$ . But he is likely to foresee the subsequent extent of home-sharing his tenant will engage in, and will take that into account in setting  $\rho$ .

To keep things simple, suppose that if  $\rho = \Delta$ , then no  $I$  agent will engage in home-sharing while every  $K$  agent will. Then, in a competitive market with perfect foresight, the rental rate for each  $I$  agent will be  $\Delta$ . However, when a  $K$  agent rents an apartment, the only way that his landlord can break even on average is by charging a rent equal to  $[\Delta + \delta(n^e)]$ , where  $n^e$  is the landlord's prediction as to how many kin members the  $K$  agent will 'invite' to live with him. (The predicted  $n^e$  will equal the actual  $n_K^*$  when the landlord can ascertain the  $K$  agent's specific circumstances, *i.e.*, his  $s$ ,  $T$ , etc.) If landlords are precluded from price-discriminating on the basis of social identity, they will refuse tenancy to  $K$  agents. In either case, the  $K$  agents will face an entry barrier in the urban housing market.<sup>9</sup>

### **Kin Migration and Endogenous Exit Barriers**

While kin membership can create hurdles for  $K$  agents to enter the modern sector, these need

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<sup>9</sup> While we focus on home-sharing, similar problems can arise for a modern-sector 'principal' who rents any durable good to a  $K$  agent for which both the extent of utilization and monitoring are costly.



not be insurmountable. As the modern sector expands, kin members may find increasing opportunities to migrate to the city. But their migration decisions are complicated by the fact that the costs and benefits of kin membership will depend on the distribution of members across the two sectors, and that it may be possible for them to lower the entry barriers to the modern sector by severing kin ties.

We now present a simple reduced-form model that captures these features of kin migration. Let there be a single kin group consisting of a continuum of  $K$  agents of measure one, who are all initially located in the rural sector. As the market economy grows, let  $\mu \in (0, 1)$  be the measure of the  $K$  agents that receive urban job offers. Each such agent has to make one of the following choices: (i) reject the offer and stay in the rural sector, (ii) migrate to the urban sector maintaining kin ties, and (iii) migrate breaking kin ties.

The payoff to a  $K$  agent from each of these strategies depends on the strategies pursued by other kin group members. Let  $\mu_M$  and  $\mu_B$ , respectively, be the measure of kin migrants who ‘maintain’ and ‘break’ kin ties, with  $\mu_S \equiv [1 - (\mu_M + \mu_B)]$  being the measure of the group that ‘stays back.’ We take the payoff to a kin member who stays back to be

$$(4) \quad V_S(\mu_M, \mu_S) \equiv v_R + \alpha[\mu_M + \gamma\mu_S].$$

In (4),  $v_R$  is the stand-alone payoff from working in the rural sector, and the remaining term – a weighted sum of the number of kin members in the urban and rural sectors – captures the benefits of kin support accruing to a rural member. We assume that  $\gamma < 1$ , *i.e.*, a rural member receives greater kin support from urban members as they are richer.

We take the payoff to a  $K$  agent who migrates by breaking ties to be

$$(5) \quad V_B(\mu_B) \equiv v_U - \kappa(\mu_B),$$

where  $v_U$  is the stand-alone payoff from working in the urban sector, and  $\kappa(\cdot)$  is the individual cost of breaking kin ties. The latter is a composite of the social and psychological costs of renouncing kin identity as well as the cost of ‘proving’ to others that one has done so. We assume that this cost is smaller, the larger the number of other  $K$  agents that have broken kinship ties, *i.e.*,  $\kappa'(\cdot) < 0$ . We also make the plausible assumption that  $v_U > v_R$ , implying that if an  $I$  agent in the rural sector is offered an opportunity to migrate, he will do so (as he only compares the stand-alone payoffs).

Finally, we take the payoff to a  $K$  migrant who maintains kin ties to be

$$(6) \quad V_M(\mu_M) \equiv v_U - D + \beta\mu_M.$$

Here  $D$  is the *sum* of the cost of discrimination that the migrant faces in the urban sector as he is recognized as a  $K$  agent, plus the transfer that he has to make to a rural member.<sup>10</sup> The last term captures the benefit from kin support that he receives from other  $K$  agents in the urban sector. We assume that the value of this support is not insignificant, specifically that  $\beta > (1-\gamma)\alpha$ .

Given the above specified payoff functions, and given that a measure  $\mu$  of  $K$  agents have urban job offers, a (static) *migration equilibrium* in our model is a specification of the measure of migrants who maintain and break kin ties –  $\mu_M^*$  and  $\mu_B^*$  – such that (i)  $\mu_M^* + \mu_B^* \leq \mu$ , and (ii) no  $K$  agent wants to change his migration strategy given  $\mu_M^*$  and  $\mu_B^*$ , *i.e.*,  $V_S(\mu_M^*, \mu_B^*) \geq \max\{V_M(\mu_M^*), V_B(\mu_B^*)\}$ , and similarly for  $V_M(\mu_M^*)$  and  $V_B(\mu_B^*)$ .

In the following analysis, we characterize the migration equilibria and identify the inefficiencies inherent in such equilibria. We then study the responses of the kin group as a

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<sup>10</sup> We studied the nature of these costs in the preceding analysis. In the current reduced-form model, we have posited a much simpler linear payoff specification that captures the essence of our previous analysis.

whole to the opening up of the modern sector.

### *Migration Externalities and Inefficient Outcomes*

*Ceteris paribus*, an incremental increase in the number of  $K$  agents that migrate maintaining kin ties (rather than staying back) leads to a gain of  $(1-\gamma)\alpha$  for each  $K$  agent that stays back, and a *larger* gain of  $\beta$  for each  $K$  agent that migrates maintaining kin ties (while the  $K$  agents that migrate breaking kin ties are unaffected). Alternatively, an incremental increase in the number of  $K$  agents that migrate breaking kin ties (rather than staying back) generates a loss of  $\gamma\alpha$  for each  $K$  agent that stays back, and a gain of  $[-\kappa'(\cdot)]$  for each  $K$  agent that migrates breaking kin ties (while the  $K$  agents that migrate maintaining kin ties are unaffected). Finally, when an incremental measure of migrants breaks kin ties, each erstwhile migrant who severed kin ties gains by  $[-\kappa'(\cdot)]$ , while each migrant who maintained kin ties loses by  $\beta$ .

These externality effects in the agents' payoffs imply that any *stable* migration equilibrium must be a 'corner outcome' where either (i) no kin member migrates, *i.e.*,  $\mu_M^* = \mu_B^* = 0$ ; or (ii) all kin members who get a chance to migrate do so maintaining kin ties, *i.e.*,  $\mu_M^* = \mu$  and  $\mu_B^* = 0$ ; or (iii) all kin members who can migrate do so breaking kin ties, *i.e.*,  $\mu_M^* = 0$  and  $\mu_B^* = \mu$ . To see this, consider, for example, an interior equilibrium where  $\mu_M^* \in (0, \mu)$  and  $\mu_B^* = 0$ . Then it must be that  $V_S(\mu_M^*, 1-\mu_M^*) = V_M(\mu_M^*) \geq V_B(0)$ . But this equilibrium is *unstable* since any small exogenous increase in  $\mu_M$  will 'tip the balance' and cause all  $K$  agents who have an urban job offer to migrate maintaining ties.

More importantly, the externality effects imply that there can be *multiple stable* migration equilibria and that it may be possible to rank such equilibrium outcomes according to alternative measures of welfare – Pareto optimality, or aggregate efficiency as measured by the sum of

payoffs of all kin members. In what follows, we indicate conditions under which different corner outcomes will co-exist as stable equilibria, and compare their welfare properties.

First, consider the case where  $\kappa(\cdot)$  is very large, so much so that  $V_M(0) > V_B(\mu)$ . This will be the case when reputation effects make it virtually impossible for an erstwhile kin member to prove that he has effectively severed kin relations. Then, for each  $K$  agent with an urban job offer, the choice is between staying and migrating maintaining ties. Further, suppose that  $V_M(\mu) > V_S(\mu, 1-\mu) > V_S(0, 1) > V_M(0)$ . Figure 1 depicts the payoffs in this case as  $\mu_M$  varies between 0 and  $\mu$ . Here, there are two stable equilibrium outcomes: one in which no  $K$  agent migrates, and the other in which all  $K$  agents with urban offers migrate and maintain kin ties. The latter outcome Pareto-dominates the former. Potential migrants face a coordination problem: it is profitable for an individual to migrate if and only if many others have done so.

Next, consider the case where  $D$  is so large that  $V_B(0) > V_M(\mu)$ . Then if a  $K$  agent migrates, he will do so by breaking kin ties. Further, suppose that  $V_S(0, 1) > V_B(0)$  while  $V_B(\mu) > V_S(0, 1-\mu)$ . Figure 2 depicts the payoffs in this case as  $\mu_B$  varies between 0 and  $\mu$ . Here, there are two stable equilibrium outcomes: one in which no kin member migrates, and the other in which all kin members who can migrate do so by breaking kin ties. These two outcomes are not Pareto-comparable – the  $K$  agents who do not receive urban job offers are better off in the former outcome while the ones who do get such offers are better off in the latter. But it is possible that the latter outcome is more efficient than the former in terms of aggregate payoffs if the migrants stand to gain more than the non-migrants stand to lose.

Finally, consider the general case where both  $\kappa(\cdot)$  and  $D$  take intermediate values so that a migrating  $K$  agent has a real choice between maintaining and breaking kin ties. Specifically,

suppose that  $V_S(0, 1) > \max\{V_M(0), V_B(0)\}$ ,  $V_M(\mu) > \max\{V_S(\mu, 1-\mu), V_B(0)\}$ , and  $V_B(\mu) > \max\{V_S(0, 1-\mu), V_M(0)\}$ . In this case, all three corner outcomes are stable equilibrium outcomes. The equilibrium in which all potential migrants migrate maintaining kin ties Pareto-dominates the one in which there is no migration; it also Pareto-dominates the equilibrium in which all potential migrants migrate by breaking kin ties if the cost of breaking such ties is large enough so that  $V_M(\mu) > V_B(\mu)$ . Here, migrants face two coordination problems: (i) migration is individually optimal if and only if enough others migrate, and (ii) maintaining kin ties while migrating is individually optimal if and only if enough other migrants do so.

Beyond highlighting the coordination issues inherent in welfare-ranked multiple equilibria, the possibility of many disparate equilibria also indicates why we might see a high variance in aggregate outcomes across time and space.

#### *Exit Deterrence and Collective Conservatism*

It is clear from the preceding analysis that if the kin group foresees that the post-migration equilibrium will be one in which migrants retain kinship ties (and thus provide increased kin support to their rural brethren), the group as a whole will encourage such migration as it will be Pareto-improving. But if expanding market opportunities lead to an outcome where the migrants sever kin bonds, the members left behind will be worse off as compared to the *status quo*. In that case, how will the kin group collectively react to modernization?

We assume that the basic instrument in the kin group's control is the exit barrier  $\kappa(\cdot)$ . By taking collective actions that impinge upon the members' belief structure and value system, the group can increase or lower this barrier to some extent. We also assume that it is the preferences of the majority of the members that determine the group's actions.

We consider the situation depicted in Figure 2, where  $D$  is high with  $V_S(0, 1) > V_B(0) > V_M(\mu)$  and  $V_B(\mu) > V_S(0, 1-\mu)$ . But now we suppose that the potential migrants can coordinate their decisions so that they migrate *en masse* by severing kin ties. Compared to the *status quo* (*i.e.*, the pre-migration outcome) where each  $K$  agent receives a payoff of  $V_S(0, 1)$  (which is also the aggregate payoff to the kin group), in the post-migration outcome each migrant is better off getting  $V_B(\mu)$  and each non-migrant is worse off getting  $V_S(0, 1-\mu)$  and the aggregate payoff of the kin group is  $[\mu V_B(\mu) + (1-\mu)V_S(0, 1-\mu)]$ . It is in this scenario that we explore when, and in what sense, the pre-existing kin system turns out to be a dysfunctional institution.

If the kin system is ‘dissolved’ in the face of growing market opportunities, migration decisions will be based on the stand-alone payoffs  $v_R$  and  $v_U$ . All agents with urban job offers will migrate and the aggregate payoff of the erstwhile kin members will be  $[\mu v_U + (1-\mu)v_R]$ . If a large enough measure of the kin group gets an opportunity to migrate (*i.e.*,  $\mu$  is not very small) and if exit costs are significant (*i.e.*,  $\kappa(\cdot)$  is not too small), this payoff will be greater than  $[\mu V_B(\mu) + (1-\mu)V_S(0, 1-\mu)]$ . Then the kin system can be considered dysfunctional.

While a total dissolution of the kin system may be a drastic step for kin members to contemplate, recognize that if they foresee that expanding market opportunities will lead to the loss of members to the modern sector (given the existing exit barrier  $\kappa(\cdot)$ ), it will be ‘efficiency enhancing’ to *reduce* exit costs (assuming, as we have, that the lowering of such costs does not affect the welfare of rural members). However, in actuality, facing the possibility of losing members to the modern sector, a majority of kin members may indeed take steps to *raise* the exit barrier in an attempt to forestall migration. We now discuss this possibility and its potential to further reduce aggregate welfare.

First, consider the case where the kin group acts only after each member *knows* whether he

has an urban job offer or not. Then it is obvious that if the potential migrants are a minority, *i.e.*,  $\mu < 1/2$ , then the majority of the kin members will act so as to raise exit costs until  $V_B(\mu)$  falls below  $V_S(0, 1-\mu)$ . If they succeed in doing so, then there will be no migration in equilibrium, and this outcome will be efficiency-reducing if  $[\mu V_B(\mu) + (1-\mu)V_S(0, 1-\mu)] > V_S(0, 1)$ . Even in this simple case, the interesting point to note is that to the extent that high entry barriers in the modern sector ‘cause’ a high  $D$ , it is the presence of these entry barriers that creates the incentive to break ties, which in turn creates the incentive for the kin group to raise exit costs to prevent member attrition.

Next, consider the case where the kin group can act at the inception of growing market opportunities, *before* any kin member has received a tangible job offer. Suppose that at that point in time, each  $K$  agent has a probability  $\mu$  of receiving an urban job offer, so that *ex post*, a measure  $\mu$  of the kin group will receive such offers. Then the group’s objective will be in tune with maximizing expected aggregate efficiency in that each member will wish to prevent migration (*i.e.*, propose the raising of exit barriers) if and only if  $[\mu V_B(\mu) + (1-\mu)V_S(0, 1-\mu)] < V_S(0, 1)$ . Note that this condition may hold even with  $\mu > 1/2$ , in which case an *ex ante* collective action to prevent migration will hurt a majority of members who would be *ex post* gainers; but in terms of *ex ante* welfare calculations, the group’s decision will be the correct one.

The above logic might seem to imply that when a kin group can take collective actions *ex ante*, it will take efficiency-enhancing decisions since incentives of all members are similarly aligned at that stage. But this intuition is misleading in richer environments with heterogeneous agents. In such an environment, as we show below, a pre-existing kin system can indeed turn out to be an instrument of stagnation for  $K$  agents and hold them back in a poverty trap.

So far, we have implicitly assumed that all  $K$  agents are identical and that each receives an

urban offer with the same probability. We now relax this assumption. Suppose that a minority fraction  $\theta \in (0, \frac{1}{2})$  of the kin group members are ‘more able’ than the others and so have a higher probability  $\mu_H$  of receiving urban job offers than the rest, who have a probability  $\mu_L$ , with  $0 < \mu_L < \mu_H < 1$ . Then a measure  $\mu \equiv \theta\mu_H + (1-\theta)\mu_L$  of the  $K$  agents will receive such offers *ex post*. If all such agents migrate by breaking kin ties, the *ex ante* expected payoff of a  $K$  agent with ability level  $a$ , for  $a = H, L$ , in the post-migration equilibrium will be  $[\mu_a V_B(\mu) + (1-\mu_a)V_S(0, 1-\mu)]$ , and the aggregate expected payoff will be  $[\mu V_B(\mu) + (1-\mu)V_S(0, 1-\mu)]$ . If nobody migrates, the payoff to each  $K$  agent (and also to the group) will be  $V_S(0, 1)$ .

For reasonable parameter values (given  $\theta < \frac{1}{2}$ ), the following chain of inequalities can hold concurrently:

$$(7) \quad \mu_H V_B(\mu) + (1-\mu_H)V_S(0, 1-\mu) > \mu V_B(\mu) + (1-\mu)V_S(0, 1-\mu) > V_S(0, 1) > \mu_L V_B(\mu) + (1-\mu_L)V_S(0, 1-\mu)$$

*i.e.*, Expected utility to type  $H$  > Average expected utility > *Status quo* > Expected utility to type  $L$ .

The inequalities in (7) imply that even though migration is *ex ante* aggregate welfare improving, it is *only* the more able  $K$  agents who will support migration, while the less able agents will propose raising the exit barrier to the extent that nobody has an incentive to migrate. Since the latter agents constitute a majority, it is likely that *ex ante*, the kin group will turn its back on market opportunities that are welfare-enhancing in the aggregate.

The above argument is built on the core idea of a *status quo* bias formulated by Fernandez and Rodrik (1991) in the context of trade reforms. The argument does not claim that all kin groups will necessarily exhibit such a bias against beneficial regime changes. But it provides a clear intuition about the forces that can lead to the collective conservatism of a kin system facing expanding opportunities in a market economy – forces that can lead the kin group to



become a poverty trap for its members.

## **Conclusion**

We have studied a simple model of a kin system interacting with an expanding market economy. Our focus has been to delineate the individual and collective responses of kin group members when they face increased opportunities to enter the modern sector. First, we have shown that kin members can face barriers to entering the market economy, barriers that emanate from the incentive of kin members to engage in workplace nepotism and to make other kinds of inefficient in-kind transfers to kin. Second, we have modeled the network externalities in the migration decisions of kin members, and demonstrated how they can lead to coordination problems and inefficient outcomes. Finally, having derived the welfare consequences of migration for the kin group as a whole, we have studied the *ex ante* decision of the group to hinder (or facilitate) the process of kin migration. We have shown that under plausible conditions, the group can endogenously raise exit costs and thus exhibit a *status quo* bias.

In conclusion, we reiterate that while we have highlighted the conditions under which the kin system becomes a dysfunctional institution when facing an expanding modern economy, our analysis also clarifies the conditions under which the system of kin support is beneficial in the process of economic transformation. In reality, the consequences of membership in a kin group have been varied for people in different parts of the world. While there is little evidence of positive effects of the kin system on productive activities in African firms, it is widely argued that the kin system in East Asia has spurred entrepreneurship. Our demonstration of the possibility of widely different multiple stable migration equilibria can help explain the heterogeneity in migration patterns of different ethnic groups in different countries at different

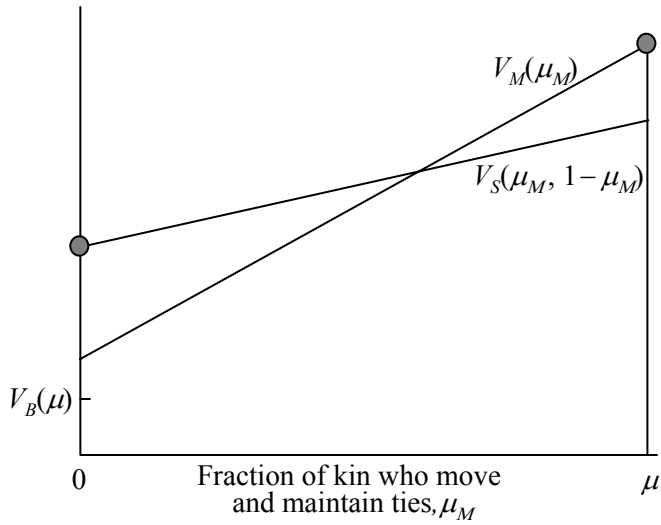
points in time.

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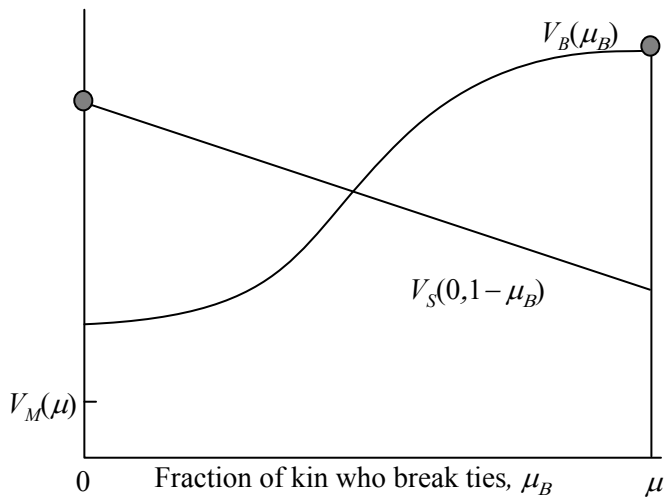
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**Fig. 1. Rewards to staying back *versus* moving maintaining kin ties**



Note:  $\mu_B = 0$  so that  $\mu_S = 1 - \mu_M$

**Fig. 2. Rewards to staying back *versus* breaking kin ties**



Note:  $\mu_M = 0$  so that  $\mu_S = 1 - \mu_B$