

**Institutions and Institutional Change:
A Review of Conceptual and Analytical Issues.**

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1. Introduction

Economic transactions are not frictionless. Instead, they are characterised by uncertainty, by significant asymmetries of information between agents, and disparities in “mental models” of how agents perceive the world and each other. As a result, significant costs arise in defining, identifying, conducting and enforcing economic transactions. These are the costs of comprehending and ordering a complex reality, and aligning the terms of each specific transaction to take maximum advantage of its specific context. In order to reduce these transactions costs, societies develop general rules which govern broadly similar classes of recurring transactions. Institutions are these structures of rules, whether implicit or explicit, which govern the interactions between individuals and groups in society.¹ These rules are either voluntarily accepted (because they are incentive-compatible), or enforced by social sanctions and law.

Institutions do not only mediate in transactions which would otherwise be costly to arrange, they also make possible undertakings which would not occur in their absence. They mediate in circumstances where the market fails completely, as in cases of public goods and externalities, and in the presence of the free-rider problems. This is the aspect which economic historians such as North have found most interesting. Others have taken the perspective that ‘institutions provide the mechanisms whereby rational individuals can transcend social dilemmas’ (Bates, 1995), which refers to situations in which privately optimal actions in the aggregate lead to socially undesirable outcomes.

Institutions gain their usefulness because they do away with the need for repeated optimisation exercises and market calculations, instead substituting rules-of-thumb or social norms. Alternatively, they are frameworks which evolve because certain kinds of transactions would not be spontaneously undertaken in the absence of a specialised procedure to authenticate them. However, there is no necessary presumption that the procedures that evolve are optimal in any meaningful sense. Social norms acquire moral force over time, rules of thumb tend to become habit, and specialised procedures become part of the social fabric of a community. Consequently, an institution can acquire a validity of its own even though it is inefficient and counterproductive, independent of the economic purpose it once arose to serve, and outlasting that purpose. In this way it may become an impediment in the path of fruitful adaptation to a changed context. It is in such circumstances that institutional change as a conscious conception acquires importance in the process of economic development.

How does one go about analysing institutions and institutional change? It is not clear that there is as yet a settled methodology; indeed it is the diversity rather than unity in institutional constructs that distinguishes the current literature. Two approaches, not mutually exclusive, are possible in attempting to develop such unity. One is empirical: we identify many instances of what loosely satisfy our conception of institutions, and look for general patterns to emerge. The other is analytical. Here the underlying precept is that institutions facilitate various aspects of transactions. We therefore start with an anatomy of a generalised transaction, identifying its various component phases. We then recognise that transactions costs result from imperfect and incomplete information, and from the strategic and selfish behavior of individuals. Hence we try to locate specific types of failures that are likely to occur in the various transactional phases. In each type of transaction, the phases in which failures are likely to occur are the ones which will give rise to institutional arrangements. But

¹North (1993), p.3. This seems to be the definition universally accepted in the New Institutional Economics literature. I am not sure that this is a sufficiently operational definition for purposes of empirical research.

then the corresponding type of failure will indicate the direction in which the hunt must proceed. This is not a perfect recipe, but in an imperfect world it may pass for a kitchen primer.

This paper takes the latter approach. In particular we take the stand that the primary function of institutions is to allow agents to coordinate their actions, and to induce cooperation between them. The remainder of this section establishes the background for this discussion. The next section offers an anatomy of transactions, and illustrates how institutional arrangements enter into various phases of transactions. Section 3 offers an analytical treatment of the problems of coordination and cooperation, with emphasis on the latter. Section 4 argues that social artifacts such as reputation are important means of enforcing cooperation, and various institutional processes, both endogenous and artificial, are designed to take advantage of this fact. It also considers social processes such as learning and norms of behavior which further enhance the cooperative possibilities inherent in an economy. Section 5 discusses how an appreciation of these factors can contribute to effective institution-building in developing economies. In particular we discuss how an appreciation of processes previously discussed can lead to intelligent design of important mechanisms such as financial markets and credit schemes. Section 6 concludes.

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The traditional neoclassical paradigm, which constitutes the contemporary mainstream of economics, leaves little space for the consideration of institutions as valid actors in the economic sphere. The starting point of neoclassical economics is a private ownership economy, where the commodity is the basic unit of analysis, and the exclusion principle applies across the board.² Property rights over commodities are perfectly well-defined and costlessly transferable, and information is costlessly available both about the intrinsic characteristics of commodities as well as the trading propensities of those who supply and demand them. It is acknowledged that these preconditions are not perfectly met always and everywhere. But in the neoclassical ideology, deviations from these preconditions result at most in market imperfections, which qualify but do not fundamentally invalidate the doctrine.

Building on this foundation, mainstream analysis arrives at a powerful conclusion which has had enormous influence on the formulation of development policy in the recent past. This conclusion is that, left to its own devices, with no artificial restrictions to curb the tendency of economic agents to truck and barter, the economy will attain a state of ‘pareto’-efficiency, in which no individual agent can be made better off without making some other agent worse off.

It is well understood that this constitution is not unchanging or unchangeable over time and place. Markets do take on different characteristics, and these characteristics do deviate from the ideal configuration which yield the efficiency theorem. In mainstream analysis, however, these deviations are considered imperfections arising from outside the realm of economics, amenable perhaps to regulation or other intervention, but not subject to modification by endogenous forces arising within the economic sphere.

² The exclusion principle refers to the ability of the owner of a commodity to exclude or restrict non-owners from possessing or using that commodity. It has been recognized that in some cases, typically referred to as public goods, this principle is violated. Neoclassicists assign these goods to the sphere of public economics, and there is a substantial body of theory surrounding them. The *institutional structure* underlying decision-making in public spheres (taxation, voting in committees, voluntary contributions), however, has attracted little comment until recent times. It is only with the advent of game theoretic techniques that these questions have come under investigation.

Early into the present century, the ‘old’ institutionalists such as John R. Commons and Thorstein Veblen, among others, outlined in great detail the contours and evolution of an institutional framework within which permissible transactions were delineated, ratified, and executed. It seemed quite clear to them that the power and advantage enjoyed by specific agents and groups manifested itself through the existing institutional framework. Commons in particular appreciated that the vitality of capitalism lay not so fundamentally in the freedom to truck and barter, as in the flexibility allowed by the legal system to renegotiate the framework of rules and conventions within which such truck and barter took place. The work of the old institutionalists, however, while extremely rich in descriptive content, stopped short of tracing an endogenous economic causality driving the evolution of institutions, and hence failed to make this study an integral part of economic theory.

The failure of neoclassical economics in developing a theory of institutions, and the inability of the old institutionalism to move beyond the descriptive to the analytical, are essentially two sides of the same coin. Neither discipline could locate for itself a ‘niche’ within which to situate an endogenous causality for institutions, which would fall within the economic rather than the political sphere. For both, institutional change was the result of political or social action; carried out no doubt by individuals motivated by self-interest who found the current structure of markets too constricting for their own pursuit of economic advantage, but carried out, nevertheless, outside the sphere of production, exchange, and consumption. There was, in other words, no identified characteristic of those three essential economic activities which could be causally and operationally related to the existence and evolution of institutions.

It has since been observed by Ronald Coase, and the observation clarified by many others including Williamson and North, that transactions are costly to identify and execute, and it is in the quest to economise on these costs that institutional arrangements arise. The costs are sensitive both to the alignment of property rights over the commodities concerned in the transactions, as well as to the procedures whereby such transactions are effected. Pure and exclusive property rights being exchanged between anonymous transactors in arms'-length transactions---the prototype adopted in traditional economic theory---is only one possible configuration; a significant proportion of transactions are conducted under conditions which are greatly removed from this textbook ideal. Such deviations occur precisely because exchange is an ubiquitous activity, and the burden of recurring transactions costs lead agents to seek ways in which these costs can be reduced. In pursuing this goal, economic agents accept curtailments and qualifications of property rights, and devise specialised procedures to identify and execute transactions. Such procedures often transcend the market and sometimes supplant it. It is this conglomeration of property rights, procedures, and associated social and economic constructs which we loosely call an institutional structure. For each society, it is a specific product of a specific history, and insofar as it conditions the effect of economic stimuli in a unique way, it is a lens through which the particular economic history of that society can be understood, and the foundation upon which development policy must be specifically constructed.

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In a modern economy, as in many earlier ones, the act of production is undertaken specifically with an intention to exchange, and often only after an agreement to exchange has been made. This is clearly true in the case of all services, and for a very large proportion of

goods. Following North, it is convenient to think of the entire complex of activities as production, and divide it into two parts: transformation (consisting of the physical and material part of production) and transaction (consisting of the activities surrounding exchange). Of these two types of activities and associated costs, economics traditionally has only admitted the first kind, i.e., transformation costs, as relevant, so that costs of production have emerged in that literature as a quantity completely determined by (usually exogenous) technology and market prices.

In a seminal paper, North and Wallis have shown that this disregard of transactions costs is an error of a scale that threatens to invalidate traditional economic theory. They found that costs associated with transactions³ accounted for over 40% of the total national product of the US in 1974. However, whereas neoclassical economics has a well-developed theory of how producers economise on transformation costs (the traditional ‘theory of the firm’), there is little theory and no formal place in neoclassical economics for a corresponding analysis of transactions costs. The New Institutional Economics is an attempt to fill this void.

A very important aspect of production is that it requires coordination and cooperation between agents. If information were costlessly available, if the future could be perfectly predicted, and if reaching agreement did not consume time and effort, this would pose no problem. In the real world, however, these costs can often become prohibitive. In order for productive activities to proceed effectively, therefore, each agent in the economy must accept certain restrictions on his actions, which are enforced either by the power of the state, or by the threat of future retaliation. Cooperation, in particular, implies that an agent wilfully abstains from taking advantage of certain situations in the interest of a partner, a group, or a community. Such self-denial, as we shall see later, is difficult to explain within the context of one-shot transactions involving fully rational agents. Many of the institutional arrangements that turn out to be critical in facilitating production, in fact, serve to embed single transactions within a broader context, essentially ensuring that agents do confront the consequences of their actions. Other institutions induce and condition social individuals to act in ways contradictory to the predictions of full rationality. In the remainder of this paper, I shall try to develop this theme further, and point out incidentally how various institutional arrangements which facilitate development fall in this general class.

2. Transactions, Costs, and Institutions

What specifically are the sources of transactions costs? Briefly, these lie in defining and securing property rights, identifying and establishing the terms of transactions, keeping track of those transactions, and ensuring that each agent involved in the transaction is in fact discharging his assigned role. This last aspect, in particular, has lately received much attention, both in the literature on industrial organization (see e.g. Williamson 1985) and in the theory of contracts (see Hart and Holmstrom). As production and exchange grow more complex, and as societies grow more varied and their populations more mobile, these aspects of transactions grow increasingly more overwhelming, and the mechanisms which facilitate transactions increasingly gain precedence over those which facilitate transformation. Indeed, the most revealing insight of the NIE for the theory of development is that it is not technology which is the greater constraint on development, rather it is the problem of deploying

³ Following the standard neoclassical definition of a commodity, transactions costs may loosely be thought of as costs which are not associated with changing the physical characteristics of a commodity, or its availability in time and place.

technology effectively and profitably that holds development back. We now turn to a brief discussion of the various sources of transactions costs.

2.1 Property rights

The creation and protection of the right to wilfully enter into transactions, or the right to decline to do so---in other words, property rights---is of course fundamental. In order for transactions to occur at all on an ongoing basis, it must be clear what types of transactions an agent may effectively enter into. In the simple example of the sale of a material commodity, this requires not only the right of the seller to alienate that commodity, but also a reasonable guarantee that he will have access to it as and when he wishes to sell it: in other words his property must be reasonably protected against theft or forcible dispossession. However, such rights may be assigned in various ways, and the specific allocation of rights have significant consequences for the transactions costs that arise.⁴

Example, Herders and hunters:

Let us illustrate this with an imaginary example. Consider a primitive community in which production takes the form of hunting cattle that roam in the wild. Typically such a community would have rules which define the rights of a hunter to an animal, and which mediate in case of a dispute. For example, the first hunter to sight an animal may have the right to hunt it, or the hunter whose arrow was the one which killed the animal may be the one to claim it. Similar rules are still in effect in game-hunting in contemporary societies.

Suppose now that some agents in our primitive economy discover the art of domesticating cattle, which has the potential of significantly improving productivity. But even domesticated cattle have to graze, and the community as yet has no rules which forbid the hunting of domesticated cattle which is grazing in the wild. There is as yet no concept of cattle ‘belonging’ to an individual, except in the context of the hunt and the kill. Those who invest their time and energy in domestication will certainly want to identify ‘their’ cattle in some way (perhaps by hanging bells around their necks), and claim that these cattle are not fair game, but the hunters would find it convenient to disregard this claim.

Several evolutionary scenarios are possible at this point. First, the existing property rights may persist, allowing hunters the right to hunt any cattle in the wild. This being a severe disincentive to domestication, this line of production will fail to develop, and the society will then continue as a (less productive) hunting economy. Secondly, the domesticators may gather enough material strength to police their property, suitably punishing any hunters who kill cattle identified as belonging to a domesticator, thereby establishing a rudimentary state-mechanism to institute and protect this newly defined right of property. Thirdly, the domesticators may be able to bribe the hunters, offering them incentives to stay away from marked cattle. This is potentially possible since by assumption domestication is more productive than hunting. Fourthly, new property conventions may develop in things other than cattle, such as land. Herders may find it possible to fence or otherwise mark off meadowland which is reserved for domestic cattle, and be able to prevent hunters from hunting on that land. Finally, the outcome that has occurred most often in history is that the hunters, being of greater military capability, have coerced the herders to pay an extortionary tribute in return for the safety of their herds.

The main point is that, if the more productive technology of domestication is to make headway, some appropriate kind of change in the conception of property must accompany it.

⁴ The classic reference is Ronald Coase’s 1960 article.

The extent to which domestication thrives, and hunting declines, will be critically determined by the kind of institutional change which does come about. The type of change, in turn, will depend on various social, economic, and political factors such as the incremental productivity domestication offers, the degree of unity among the domesticators, herders, and cross-groups, the relative military and social power of the two groups, and so on.

The scenario above is imaginary, but immediate analogies can be drawn with property rights problems that are of importance in the modern world, for example rights to intellectual property. The way in which property rights come to be implemented in this area will clearly have significant influence on the productive impact of new electronic media.

Another example, Bribes:

It should be emphasized that effective property rights need not necessarily be provided by the law of the land or be in compliance with it. For example, government clerks in many countries possess the effective right to grant exemptions from legal requirements, and they regularly do so in return for bribes. While the law will not recognize this as a right, the existing administrative and vigilance structure dictates that it is. Similarly, there may be various services (say, maintenance work on water or gas lines) which a consumer is legally entitled to by virtue of a prior contract. In practice, he may find that the service requires the payment of *Ikramyat* to the workmen who have arrived at his door. In both cases, an agent (the clerk or the workman) finds himself in effective possession of a service which is legally not within his right to sell.

Corruption occurs most readily when the allocation of scarce resources are made through administrative or political decisions rather than through a market process. This state of affairs comes about as a result of detailed regulation, which is often aimed at achieving goals of equity or long-term development. It is felt that some sacrifice of narrowly-conceived efficiency is justified in return. In practice, the allocation procedure often degenerates into one where scarce resources are allocated by officials in return for bribes, or as personal favors (which will presumably be returned in kind at a later date). In other cases, regulation simply serves as a cover for powerful individuals or families to establish monopoly rights in certain trades. For example, in countries where alcoholic drinks are banned, there may be thriving markets in alcohol which are monopolised by well-connected families.

In some cases, an established system of bribes can restore efficiency to a market festered by regulation, though this is by no means universally the case.⁵ Often of greater importance is the process of rent-seeking that is fostered by regulation which establishes discretionary allocation. Since the officials in charge of allocating the scarce resource are in a position to extract bribes, two consequences follow. First, the value of the positions ensure that potential candidates vying for these jobs will undertake a considerable investment to obtain appointments; secondly, these officials, and those who reap benefits from controlling appointments, develop a significant stake in maintaining the regulatory environment, regardless of whether it continues to serve a productive purpose or not.

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Even in the case of formal property rights which are enforced by the state, such enforcement would be impossible unless these rights were already recognised and respected to a large extent. If violations were numerous, then the limited capacity of the state would be

⁵ See the excellent conceptual paper by Shleifer and Vishny. A large part of the 1997 World Development Report of the World Bank is devoted to the question of corruption and its effect on development.

insufficient to prosecute even a small proportion, and the rights would effectively break down. It is only because these rights are respected for the most part that the state can effectively intervene in the small proportion of cases where they are violated. There must in general be more to property rights than simple enforcement; in some way individuals must find it in their interest to cooperate with the state to maintain these rights.

2.2 Finding partners and making agreements

In order to enter into transactions (and thus have a reason to produce) an agent must possess a large amount of information. He must know something about the identity of potential trading partners and their needs, he must know how to locate them, and the terms he can obtain. This is one of the oldest and most evident costs of transacting, and organizations such as village markets and intermediaries arose very early to mediate and mitigate such costs. In earlier economies, and especially static ones, where people and needs did not change much or often, such knowledge could be acquired once and the resulting transactions repeated over and over again in time. Even dynamic traders such as the Bedouins established customary trade routes and traded in regular places, probably with regular partners.

In stable modern economies, the most enduring instance of a response to this problem that has evolved is the practice retailing, which relies on the law of large numbers. However, many major transactions, especially those between firms, cannot be solved by the retail trade. Often these transactions may be one of a kind (e.g. finding financing for a project, or finding retailers to carry a firm's products in a particular area). Such transactions are complex and subject to opportunism (discussed below), and at the same time essential for growth of trade and production. Mechanisms which encourage reliable matching are therefore essential for the smooth functioning of an economy.

The matching problem is universal enough that, since very early times, intermediation has been the most ubiquitous activity in the transactions sector. Whether it is for buying a house, arranging a marriage, or investing in stocks, we generally first call upon an intermediary rather than the ultimate transacting partner. The intermediary may be a specialist in procedure---such as a travel agent or stockbroker, or a specialist in information---such as a real estate agent. Whereas some intermediaries may focus only on the information function, every procedural specialist is usually also a source of information as well. A third category, populated densely by financial intermediaries, is that of agents who not only broker specialist services and information, but also serve to diversify risk.

Two problems related to intermediation are of note. First, owing to its superior informational position, the intermediary can induce a client to act against his own interests. This is clear in the case of financial advice. As with a medical doctor, the client is often not competent to judge the quality of service provided by the intermediary, at least not until it is too late. Secondly, the intermediary may often need to acquire a significant amount of information regarding the client. This may range from innocuous data such as travel plans, to sensitive information such as financial status. Some of this information may be of considerable value to third parties, to whom the client may not want the information divulged. On both counts, it is of significant importance that the intermediary act with honesty and in the interest of the client. Whether it does so depends on the structure of the specific sector, and the checks and balances that are in place to ensure honest behavior. Some problems related to financial intermediation in emerging markets are discussed in detail in section 5.

Example: Marriages and Mergers.

When direct intermediation is not present, parties interested in an alliance may find other devices to reveal and extract information. These conventions are the more elaborate when the stake involved is high, but also, additional high stakes may be artificially introduced in order to lend seriousness to the process of alliance formation. In most societies, not Arab ones the least, weddings are a fairly expensive and ostentatious affair. Thus one would expect, and typically find, that the two parties involved in a wedding engage in lengthy negotiations over the extent and apportionment of the costs. What is remarkable, however, is how much of this apportionment is already determined by custom, which has evolved over a long time and reduces the cost of negotiations.

Customary arrangements start much earlier than the wedding negotiations. Once the prospective couple (or the corresponding families) have developed some interest in each other, courtship proceeds within the confines of an engagement: which protects the alliance from external disruption or ‘takeover bids’, and allows the parties to gather information on the value of the alliance. The financial and social cost of breaking an engagement ensures some seriousness, but at the same time the costs are not so high that the alliance would proceed even if sufficient adverse information were revealed. The ceremony, publicity, and expense that is associated with each stage of this progress thus serves the purpose of aligning the incentives of the various parties in favor of a successful marriage, and discourages flippancy.

Once the wedding takes place (and this is of course the most expensive step), the existing norms take into account the proper alignment of incentives to make the marriage successful. For example, in a Muslim marriage, the choice to divorce rests overwhelmingly with the groom. One way to ensure that this choice is exercised judiciously is to attach a significant cost to it. This is attained by the custom (at least in Egypt) that, at the time of the wedding, the groom’s family provides the house or apartment for the new couple to live in, and in case of a divorce, this abode becomes the property of the bride.

Compare the marriage to a merger between two firms, one of which supplies an input which is necessary to the other’s production process. The firms may initially transact on the open market, and in the process discover a synergy between their activities. This may lead to an exclusive contract, which requires each firm to build some facilities which are useful only insofar as it transacts with the other firm (e.g. an assembly line geared to an exclusively designed product). This is the engagement period, during which each firm makes a substantial investment, and is thus committed to sincerely exploring the positive possibilities of the relationship. Finally comes the merger, which presumably attains great improvements in cost and function, but is correspondingly difficult to reverse. In both marriage and merger, the process of successively greater commitment with associated increasing cost of detachment provides the right sequence of incentives to investigate possibilities, as well as to strive sincerely for the success of the relationship.⁶

In either alliance, the objective of each partner in the initial stages is to assess the integrity and trustworthiness of the other partners, and also to assess their skill in business. Most partnerships start with small but definite stakes, allowing each partner some incentive to cheat in order to make a quick gain. In a successful alliance, however, this temptation is held in check by the promise of bigger gains which will proceed if the trust is indeed established.

⁶ The author wishes to plead awareness of significant differences in content between marriage and merger, which have been overlooked in the present context.

2.3 Keeping track and working together

Once a transaction has been agreed upon, all involved parties must be able to follow its progress. Otherwise deals must be made essentially on trust, which is not universally a practicable basis for economic transactions. This requires the evolution of standards and conventions, on the basis of which parties can communicate to each other their respective positions, and the progress of their role in the transaction. Principals (those who delegate decision-making authority) must be able to track the performance of their agents (those to whom the responsibility is delegated).

The simplest example of such disclosure is in the periodic statements of publicly held firms, which allow shareholders to assess whether their appointed executives are competently discharging their duties or not. However, most shareholders are not qualified to evaluate the validity of such statements, nor are they necessarily competent to assess, even on the basis of a statement, whether the executives are doing a good job. Thus there arise independent mediaries such as auditing and accounting firms, which take over the task of assessing and evaluating the records for the principals. Again this requires the establishment of conventions in order that such agents can communicate their findings easily and effectively to each other.

Standards and conventions may be written into law, as is the case with financial disclosure standards in many countries. Clearly the specific requirements and controls which the law imposes has much to do with the quality of the disclosure, and therefore the functionality of the standards. But often, in history as well as in contemporary practice, these may exist merely as conventions agreed upon by all parties concerned.

However, conventions are important in more than disclosure. Consider for example the use of nuts and bolts. In every country, and even internationally, there are some known and accepted sizes in which these are manufactured. Thus a producer who makes a commodity which uses nuts and bolts need not first contract with a supplier to provide him with agreed sizes; he can assume that specific sizes will be available on the market.

Enforcement of the convention is not necessary once it has become established---since it is in the interest of both producers and suppliers to adhere to the accepted sizes. But therein lies the force of a convention: once adopted it is very difficult to change, even if the convention turns out to be inefficient. The case that is a favorite with economists is that of the QWERTY keyboard, which is reputedly less efficient than the Dvorak keyboard. But the former has become so universally accepted that there is little possibility than any other layout will ever come into use as long as keyboards are used (on this see Arthur (1989) and David (1985)).

Examples from industry

The force that conventions have also implies that, in markets where standards are being established, different firms will compete to get their own specifications accepted as standard, even at significant cost. Sony's attempt to make Beta the standard in videos is a case in point. Since Sony already had this technology developed to a more sophisticated level than any of its competitors, establishment of the Beta standard would have given it a significant advantage in that market. As we know, that particular gamble did not succeed, and VHS became the universal standard.

Another tussle over standards is currently being waged in the field of telecommunications, over high-definition television (HDTV). However, there is an institutional process which now coordinates the development of standards, at least separately in Europe and the US, with the result that organizations which are competing to develop this line of telecommunication can constantly coordinate their efforts, and the standard is

evolutionarily specified concurrently with the process of research. As the development of new processes becomes more and more expensive, such coordination is essential if firms are to invest adequately in research. But this should not obscure the fact that, even in more mundane matters such as electrical outlets and pharmaceuticals, coordination of standards within industries and across countries can make the process of development and trade perceptibly smoother.

A Social Example: Sitting Down to Dinner

The existence and evolution of institutions are not phenomena peculiar to the traditional sphere of economics. In social, political, and other matters as well, individuals enter into transactions with each other which are costly in terms of time and effort. Thus norms evolve whereby these transactions can be ordered in a relatively effective way. Consider for example, the norm that, at a formal dinner, the hostess assigns places around the dinner table to her guests. The guests themselves certainly have preferences regarding seating, which may conflict with each other. It may be time-consuming, and sometimes socially embarrassing, to collectively determine these preferences and find out the 'optimal' seating arrangement. An autocratic assignment of places by the hostess may well be less than optimal. However, she is likely to have the most acquaintance with the preferences of all the guests, and also has an interest in the general success of the dinner. Further, qua hostess, she is the one who sets the table. Thus, assigning to her the right to allocate seating may well have arisen as an effective way to solve the seating problem, and in time developed into a norm.

2.4 Providing incentives: The problem of asymmetric information

Given that property rights are defined, trading partners can be identified, and a basis for coordination is available, transactions will still suffer from the fact that agents behave opportunistically as and when they can. That they can do so is a consequence of asymmetries in information. No two agents share exactly the same vantage point on the universe, and thus between every pair of agents there must be differences in what is observed and what is known. Opportunism may enter in each of the earlier processes, as well as at the stage of execution of the transaction.

Thus when two agents enter into a contract, in which one agent (the 'agent') must carry out a task on behalf of another (the 'principal'), the contract must be designed in such a way that the party with superior information does not have an incentive to use this advantage against the interests of the other party. Various standard forms of contracting have evolved in different times and places to cope with specific instances of asymmetric information.

Two kinds of asymmetric information can be identified: hidden information, and hidden action. *Hidden information* arises when one party has a characteristic which is not immediately obvious to the other, but is important to the other. The risk in this case is that the 'blind' agent may enter into an agreement with a partner of the wrong or undesirable type. In the literature this type of problem is known as 'adverse selection'. The conventions surrounding marriage, discussed earlier, offer one example of a procedure which is devised to circumvent adverse selection, when both parties have hidden information. In section 5 we discuss another example which is more relevant to the problem of development: that of the development of financial markets.

The second type of information problem, arising from *hidden action*, is one in which one of the agents (the 'agent') undertakes an action on behalf of the other (the 'principal'), and in which he has to put in some effort or cost. The principal cannot closely monitor this effort,

nor can he definitely infer the extent of effort from the outcome. This is the problem of 'moral hazard'.

Example: Sharecropping.

As an example, suppose a landowner and a tiller of the soil are to enter into an agreement whereby the latter will cultivate a plot of land owned by the former. The tiller does not know the exact productive quality of the land (adverse selection), and the owner will not know the extent of effort the tiller puts in, nor the exact conditions that will obtain regarding various factors that affect production (moral hazard). Thus the tiller is unwilling to commit to a rent, for he may find the land of inferior quality, and then be forced to exert excessive effort in order to produce enough to cover the rent. Nor is the owner willing to commit to a wage, for then the tiller may have inducement to slack, blaming low production on the weather and other factors, and knowing that he will get the same wage regardless of the effort he puts in. A common response to this type of situation is the sharecropping contract, in which the two parties agree to divide the product between them in an agreed proportion. Under the ideal neoclassical conditions, this would not produce a Pareto-efficient outcome, but in the conditions under consideration it makes a workable arrangement possible, where neither a rent nor a wage contract would have been acceptable to both parties.

Example: Oil Strike.

Suppose that a deposit of oil is discovered in a sovereign country. The country does not indigenously have the means to develop this resource, nor to assess its value. However, there are several foreign companies which are in a position to do both. The Pareto-optimal scenario would require the company which is most efficient at prospecting to find the deposits, and the company most efficient at extracting to work them. The problem for the country is to devise a procedure whereby it can award the rights to each process to appropriate companies, and extract for itself the maximum rent in the process. In order to do so the country must devise laws or procedures which induce each company to reveal its true valuation of the site, so that the appropriate rent can be extracted.

Bilateral negotiations with one of the companies is suboptimal for this purpose, for then the prospecting company can underestimate the value of the resources and acquire the rights at a low price. Consequently it can also afford to underbid a more efficient extracting company for the extracting rights, where the more efficient company would have made a higher bid if it knew the true value of the deposits. The specific process that is adopted is instrumental in determining the efficiency that is achieved, and the information that is revealed.

The distribution of information is necessarily a function of the positions which different agents occupy in the transaction. These positions are determined by the social and technological conditions under which the transaction takes place, and by the nature of the transaction itself. In an ongoing economy, these conditions are likely to change only very slowly over time, during which transactions which fall in a distinguishable pattern tend to recur routinely. As the same contracting problems are faced recurrently, designs which acceptably solve these problems tend to evolve, and in time become accepted as contracting rules, and may function as Common Law.

Once certain designs become institutionalised, however, transactors act in the expectation that these designs will be adopted in future contracts. The resulting pattern of actions may in the longer run become suboptimal or even counterproductive as the underlying conditions change. Conscious social or legal action may become necessary to restore efficiency in the changed context. Examples abound across time and place, prominently in

connection with water rights, rights of pasture and common land, rights of access to rivers and seaports, and the right to pollute.

3. Analytical Framework: Strategic Interaction

In the preceding discussion, it was repeatedly obvious that institutional structures mediate in two primary types of problems. One is to coordinate the actions of different agents who all benefit from such coordination, but do not initially have a blueprint regarding the specific actions they must take in order to be aligned with each other. The other is to mediate in situations where there is some conflict between the goals of the different agents who interact, but an overall superior outcome can be attained if some of these conflicts can be subsumed. In this section, we turn to analytical devices drawn from economic theory---primarily game theory, that are useful in analysing such situations. The analysis is conducted under the assumption that agents act with full rationality as in the neoclassical framework, and that this is common knowledge. The primary analytical problem derives from the fact that, in any interactive situation, there may be multiple equilibria, some of which are more efficient than others. Different possible institutional arrangements correspond to different equilibria.

3.1 Simple Coordination

When we drive cars on a street, it does not matter whether we drive on the left or the right side of the street, as long as all drivers follow the same convention. Given that a convention exists, it is in the interest of all to abide by it, and temptations to deviate are relatively small. This is a classic example of the game of simple coordination, with the special property that all involved agents are indifferent between the different possible conventions ('drive on the left' and 'drive on the right'). In other cases, the choice of convention may not be a matter of indifference, though once a convention is generally accepted, it is still in everyone's interest to follow it.

Take for example the question of who should go first when two cars travelling at right angles to each other arrive at a crossing. Two conventions are in general use. One is that the car which arrived first at the crossing has right of way. The other is that a driver should yield right of way to the car which is on his right, regardless of who arrived first. With the second convention, right of way is determined independently of any action that the drivers might take, thus there is no reason for either driver to change his behavior in an attempt to affect the outcome. With the first convention, however, an impatient driver is likely to race to the corner to gain right of way if he sees another car approaching on the cross street. Anyone who has driven in Cairo, for example, knows that there are well-defined rules (such as this one) which determine precedence and progress on the street, and every driver acts in the anticipation that others know these rules. However, the rules that drivers in Cairo have chosen to coordinate on simply happen to lead to an overall inferior equilibrium. The problem, even for well-meaning drivers, is that once behavior according to these rules is generally anticipated, unilateral action is powerless in changing the equilibrium, and is in fact counterproductive. Traffic authorities in newer cities, such as Dubai, have foreseen this power of convention, and have succeeded in implementing from the outset a pareto-superior convention.

	L	R
T	(2, 2)	(0, 0)
B	(0, 0)	(1, 1)

Figure 1: Pure Coordination

The game is illustrated by the matrix in figure 1. There are two players: Row and Column. Row chooses between strategies T and B, while column chooses between L and R. The payoff to the two players are determined by the strategy combination that is chosen, and are written in the corresponding cell in the order: Row's payoff, Column's payoff. The combination (T,L) is an equilibrium since if row plays T, it is best for column to play L (he gets 2 rather than 0), and if column plays L then similarly T is Row's best response. But by the same token, (B,R) is also an equilibrium. If the latter is the accepted convention, then the economy is stuck in a low-level trap, and the convention must be broken in order to move to a better state of affairs.

One may question why the economy got stuck in the bad equilibrium to begin with. One possibility is that, at the time when the convention was established, the payoff matrix was different. Perhaps the payoff to (T, L) was (0, 0), and it changed to (2, 2) in time with technological change. The other possibility is that the payoffs in the off-diagonal cells may be different. For example, replace the payoffs to (T, R) and (B, L) by (-2, 0) and (0, -2) respectively. It will be seen that playing T is a risky strategy for Row, as is playing L for column, unless each is perfectly sure of what the other will play. Thus the bad convention may become established initially as each player minimises risk.

	L	R
T	4, 4	0, 0
B	0, 0	1, 5

Figure 2: Coordination with Conflict

Things get somewhat more complicated when the players are not indifferent about which equilibrium they coordinate on. Consider the game in figure 2. Here it is clear that both players would prefer either outcome (T,L) or (B,R) to the outcomes (T,R) and (B,L). However, row has a distinct preference for (T,L), while column prefers (B,R). If we allow that the net social gain is the sum of the gains of the two players, then (T,L) is the social optimum. However, it is not clear that this optimum will be necessarily be played.

Interpret the game in figure 2 thus: let Row be the underclass, and Column the elite. The equilibrium (B, R) represents a situation where the underclass is restricted in its economic pursuits by various social and legal conventions. This allows the elite to utilize the productive capacities of the underclass at low cost, leading to the stated payoffs. The economy can move to the equilibrium (T,L) by adopting policy measures which allow members of the underclass to utilise their entrepreneurial and productive talents---perhaps by facilitating cheap finance or establishing institutions which provide education and training. However, the move from one equilibrium to the other may become significantly difficult if the elite controls the decision-making process, and is sufficiently closely knit to protect its advantage.

The game in figure 2 can also be interpreted in another way. Let Row be an agent who is temporarily in trouble (perhaps his car has broken down), and Column is a passer-by who can help Row at some small cost to himself. (T,L) is the outcome which occurs when Column stops to help and Row acts in anticipation of this, while (B,R) is the outcome where Column does not stop, and Row does not anticipate that he will stop (Row may walk along the highway in search of a telephone to summon a mechanic).⁷ This example differs from the elite-underclass example in one important respect. Any given person may reasonably anticipate that at some time his car will have a breakdown and he will need assistance, thus if he is cast in the role of a passer-by, he can well empathise with Row's predicament. This may well lead to the convention that passers-by stop to help motorists in trouble.⁸ In the elite-underclass example, however, the positions of Row and Column are not interchangeable, and such empathy is unlikely to develop.

A case can credibly be made that underdevelopment is the result of an economy being locked into suboptimal conventions, and that development is correspondingly the process of replacing these conventions with more productive ones. If the suboptimal convention is similar to the case of the breakdown and the passerby, then replacing the convention may not be too difficult from the policy point of view. Emphasis needs to be placed on education, and it may be sufficient to train a corps of volunteers to act in contravention of the convention. If the number of people that deviate from the old convention is sufficiently large, expectations to the contrary will start to develop, and the old convention may in time break down. However, policy will generally be more difficult to implement in the elite-underclass case, and more antagonistic social processes may be necessary before appropriate changes can take place.

While I believe that there is more to development than this, the changing of conventions must remain an important part of the process. Many of the attributes of underdeveloped countries, and the resulting evils, can indeed be interpreted as the outcome of coordinating on suboptimal conventions. In many cases, these exemplify an important insight of institutional economics: that institutions are conservative, and ones which were once harmless may refuse to give way when in time they become barriers to progress.

3.2 Cooperation

We next consider situations in which several agents interact, and each agent has a choice between actions which enhance the well-being of the group (cooperative actions), and actions which enhance his own well-being at the cost of the group. In the interest of clarity, much of the following discussion will proceed under the assumption that there are two agents.

The Prisoners' Dilemma

	C	D
C	5, 5	0, 8
D	8, 0	1, 1

Figure 3: The Prisoners' Dilemma

As a simple example of a cooperative situation, suppose that two shepherds agree to mind each other's flocks, such that, at any given time, one shepherd looks after both flocks,

⁷ The payoffs in the off-diagonal cells may need to be altered slightly for a faithful representation.

⁸ However, this is not an *equilibrium*, it is subject to the free-rider problem. More on this in section 4.2.

while the other has the time free to attend to other things. Minding two flocks is more work than one, but if both stick to the agreement they are both better off than otherwise. However, each shepherd has the option of neglecting his neighbor's flock when it is his turn to mind them. If one shepherd does this, he gains even more than under full cooperation, while the other loses heavily. If both cheat, then both are worse off compared to the case of no agreement. The accompanying matrix in figure 3 displays such a game. Row and Column are the players, C (cooperate) and D (defect) are the strategies each has available, and each cell in the matrix shows the payoffs to (row, column). This familiar "Prisoners' Dilemma" is the basic game that, in various forms, is most commonly used to analyse cooperation. It is symptomatic of cooperative situations in general, in that when two agents agree to cooperate, each leaves himself vulnerable to harm in case the other agent fails to live up to the agreement.

In the game in figure 3, it is immediately obvious that, acting rationally, both players will choose to defect. This is because defecting is a superior strategy for each player (selfishly speaking) regardless of the strategy adopted by the other player. Knowing this, one typically does not expect to enter into such arrangements with strangers. Indeed, if all agents were strangers to each other, cooperation would never happen.

Finitely Repeated PD

This, however, is not usually the case. The two shepherds in our example presumably are neighbors known to each other, and connected in various social ways. Further, it is quite likely that they expect to be able to cooperate not only in one instance but in several, time after time. So suppose now that both players know that they will have the opportunity to play the game not once but n times in sequence. Each players payoff in the repeated game is the sum of his payoffs in the n one-shot games. What sort of equilibria can we expect?

As in the one-period game, if both players cooperate, they gain more than if both defect. Unlike the one-shot game, however, future cooperation can be made conditional on past cooperation. Thus Row, for example, may choose the strategy, "Start with cooperation, continue to cooperate as long as Column cooperates, but if Column defects once, then defect in all future encounters.⁹ Column's best response to this is to cooperate in all the rounds from 1 to $n-1$, and then defect in the n -th round. This is because, once he defects, Row will defect in all future rounds, and Column's best action in those rounds will also be to defect. whatever gain he makes by defecting in a round $t < n-1$ is thus more than offset by the potential losses in the rounds $t+1$ to $n-1$. Since there is no punishment for defecting in round n (the game ends) he defects in that round.

This would be a nicer solution than in the one-shot game, except that Row's strategy here is not consistent with full rationality. Knowing what Column's response will be (and even otherwise) Row has no reason to cooperate in the n th round. Indeed, if he expects that Column will cooperate until round $n-1$, then he should only cooperate until $n-2$, and defect in $n-1$, since there will be no cooperation in round n anyway. But then Column should not cooperate in $n-1$ either! Continuing recursively in this way, we find that cooperation breaks down altogether. Indeed, the only equilibrium in this repeated game that is consistent with full rationality is that both players defect in every round.

⁹ All that follows can be analysed in more detail and using more complex strategies. However, the basic intuition that emerges is not different from what is presented here.

Infinite Repetitions and Uncertainty

The problem in the previous example is that there is a well-defined last period (round) for the potential partnership, and each agent anticipates that the other will behave opportunistically as that period draws near. Cooperation can indeed be sustained if the repeated game is played infinitely many times, or the last period is not well-defined. For example, suppose that the game may end after any period with some positive probability, but may continue with the remaining probability. Then defecting in any period results in sacrificing the expected returns from future cooperation, in exchange for a one-time gain. If the probability of continuation is high enough, Cooperation results in equilibrium. With infinite repetitions, of course, the cumulative gains from future cooperation must always outweigh the gain from a one-time defection.

In the above, we have assumed that agents are perfectly patient, they do not discount future payoffs. If agents are impatient, then the immediate gain from defecting may outweigh the future gains from cooperation. In order for cooperation to emerge, agents must therefore be ‘sufficiently’ patient, the required degree of patience depending upon the specific numbers in the payoff matrix.

Another complication arises if cooperation requires the participation of a larger number of agents. Here, when one player defects, the remaining players must ‘gang up’ on him, and for a few periods play those strategies that inflict the maximum punishment on the offender. The punishment period must be limited because the remaining players (and presumably a penitent offender) will want to go back to a cooperative regime to reap the rewards (otherwise cooperation breaks down altogether as soon as any one player defects). But the punishment strategies would typically require sacrifices on the part of the other players. The larger the number of players, the smaller is the incentive for any one player to participate in the punishment.

The above insights can be summarised as follows: game theory predicts that cooperation will arise and be sustained more easily when there are few players, these players are patient, and they interact repeatedly for a larger number of periods. In other words, cooperation is more likely in small stable communities of prudent people---which is an intuitive and reasonable observation.¹⁰ However, it also follows that as these conditions weaken, cooperation will tend to break down progressively. This is not an adequate basis for cooperation in most modern economies, which are large, and often based upon non-recurring encounters. Further, it should be noted that while there are many solutions in the infinitely repeated game which incorporate various degrees of cooperation, the simple non-cooperative strategy of defecting in every round never disappears from the list of solutions; indeed it remains as a strong equilibrium. In the absence of some cooperative expectations on the part of the players, this is the equilibrium that will presumably be played.

¹⁰ See Olson (1965) and North (1990).

4. The Institutional Framework: Inducing Cooperation

Despite the conclusion of the last section, cooperation is observed in various measures in all economies, more so in successful ones. Very seldom, if ever, do we concern ourselves with the possibility that agents will habitually play the 'worst' equilibrium of consistent defection. This has led North and other institutionalists of the historical school to declare that game theory has proved inadequate in explaining the performance of real economies. This section discusses mechanisms which induce cooperation in such contexts, and the various ways in which property right allocations and other institutional devices contribute to this.

4.1 Reputation: Embedding one-shot transactions in repeated games

In limited-time or one-shot transactions of any importance, agents typically do not blindly pick another agent to transact with, but obtain information regarding the honesty and reliability of potential partners. In many communities, especially smaller ones, this information is readily available and need not be sought out. In their turn, agents pass on this information, usually enhanced by their own experiences, to other agents who may in the future deal with the same partners. Thus at any given time, each agent has a stock of *reputation*, which conditions the transactions possibilities which are open to him. An agent with a high (or good) reputation will have many willing partners, and in particular partners who also have high reputations; agents with poor reputations will have to be content with few willing partners, and even those would be of relatively poor standing.

In the present context, we may fix ideas by thinking of "reputation" in the context of a prisoners' dilemma as the proportion of times the agent has been known to play the cooperative strategy. Let each agent possess a "reputation" which is observable to everyone. Agents are reputed to be "good" if they are known to cooperate, and "bad" if they are known to defect. An agent's reputation is destroyed if he defects even once. Suppose that agents can pick partners to transact with, and that entering into some transaction (even if the outcome is mutual defection) is better than no transaction at all in a one-shot setting. Then it is easy to see (and it can be proved) that agents with good reputations would prefer to transact only with other agents of good reputation, and those matches will produce mutual cooperation, while agents of bad reputation will only find similar partners (because the well-reputed agents will refuse to transact with them) and those matches will end in mutual defection.

The model in the above paragraph has a very coarse information structure (reputation is either good or bad, nothing in between) and reputation is destroyed easily. If we allow finer information structures, and correspondingly permit agents to be placed in a larger range of information types, then we could obtain the result that agents in the intermediate reputation ranges play mixed strategies---i.e., they defect a fraction of the times they play, thus protecting their less than perfect reputation from degenerating too far.¹¹

However, the point of this excursion is not to investigate the fine structure of such a model, but rather to point out that, in the presence of a reputational factor, agents who are in one-shot dealings with other agents nevertheless behave as if they are playing an infinitely repeated game. The reason is that, even though the agent may not play with the same partner again, the consequences of his actions in each single meeting carry over to future meetings. Building up a stock of reputation thus allows the agent to enter into partnerships with other "good" agents, and thus benefit from mutual cooperation. This does not mean that the cooperating agents are inherently of a higher moral character, but rather that the future gains

¹¹ For a credit market model which develops this theme, see Douglas Diamond (1989).

from protecting their respective reputations is greater to them than the immediate profit from defection.

To argue that this economic function is at the root of the attractiveness of gossip would be taking too functionalist a point of view. However, both gossip and its more respectable cousin---reputation---have certainly served throughout history to embed one-shot transactions in a repeated framework, and therefore encourage cooperative behavior. In earlier economies, which were small, closely knit, and where agents were not very mobile, reputations were common knowledge, and deviations were easily punished by both individual and community action. An individual may participate in the punishment of a deviant because otherwise the community would in turn act against him.¹²

With the enlargement of the arena over which economic activity takes place, and the increased mobility of agents, the role of old-fashioned reputation has become increasingly limited. The records upon which reputation must be based are spread in increasingly diverse fashion, and are likely held by agents who are not in a connected network. However, as individuals and firms increasingly enter into transactions with partners that they do not know, and as size and diversity becomes a necessity for survival in the business world, the need for such information has increased rather than diminished. As a result, new, specialised sources of information have arisen, which perform the function which the informal institution of reputation had served in earlier societies.

Credit bureaus, better business bureaus, and consumer interest agencies are agencies of this type. Each of these receives and maintains information regarding transactions undertaken by specific agents, and the conduct of those agents in those transactions. Some agencies, such as better business bureaus, may only maintain a record of complaints made against the agents (in this case---firms) by unsatisfied partners. Others, such as credit bureaus, will maintain records also of transactions completed in good standing. When a potential lender bank is faced with the prospect of lending to a particular individual, it will ask for access to these records, and assess the level of risk that is involved in the transaction.

The demand for agencies which collect and distribute information thus arises endogenously in modern economies. But since such agencies must acquire and maintain sensitive data, which can both help and harm other agents, they are susceptible to opportunism. The service provided by properly functioning agencies, however, are indispensable for economic growth and development. Two types of policy initiatives are useful in this regard. First is to develop an implementable framework to regulate such agencies, and to provide them with the appropriate incentives to discharge their function honestly; the second is to facilitate the collection and organisation of information on individuals and firms. In other words, whereas the reputation of individuals arose endogenously and naturally in earlier communities, the acquisition of reputation must be actively facilitated in modern economies in order to elicit cooperative behavior.

4.2 Norms and less-than-rational responses

In the previous section we proceeded under the neoclassical assumption that economic agents have the capacity to optimise costlessly in complex situations. For example, in the finitely repeated prisoners' dilemma, even if the number of iterations is very large, both

¹²See for example Kuran's discussion of the Indian caste-system, and of the resilience of the communist regimes in Eastern Europe. See also Greif, Milgrom and Weingast (1994), and Greif (1993) on how mutual enforcement sustained cooperation among the Maghribi Jewish traders, even though the community was spread all around the Mediterranean, and consisted of individuals who may never have met each other in person.

agents correctly assess each other to be perfectly rational and selfish, and foresee the consequence of this rationality on the course of the game, thereby arriving at the noncooperative equilibrium as the only possible outcome. In fact there is good reason to believe that agents are influenced in their behavior by forces other than selfishness, in particular by social norms and moral convictions. Further, optimisation takes time and effort, which may increase more than proportionately as the context becomes more complex. Both of these factors lead to significant modification of the behavioral model of economic agents, which have important consequences for our purposes.¹³

Suppose that, in an economy, agents are periodically paired randomly with each other, and each pair then has the opportunity to cooperate (based on a PD matrix) for several periods. Suppose also that agents do not know for certain that other agents are perfectly rational.¹⁴ In particular it is known that there is a large proportion of agents who play the *tit-for-tat* strategy, which is to cooperate in the first period when matched with a new partner, and then in each subsequent period to copy whatever the partner played in their previous encounter. Thus a player who plays tit-for-tat will cooperate as long as the partner cooperates. It will be easily seen that the rational response to this strategy is to cooperate in all periods except the last.¹⁵

Thus a rational agent who plays in the belief that his partner is tit-for-tat will himself be indistinguishable from a tit-for-tat player except in the last period. But in fact his partner may not be really be tit-for-tat at all, but a rational player playing in the belief that *he* (the first-mentioned agent) is tit-for-tat! Even if both play on false beliefs, these beliefs will not be proved wrong until the last period, and in the process the partnership will attain a much better outcome than would be obtained in the ‘rational’ equilibrium.

An economy in which agents believe that other agents are tit-for-tat will therefore, on the whole, fare much better than one in which agents know each other to be perfectly rational. It follows then that it is efficient for a society to foster the corresponding belief within its population, or perhaps condition its members to act according to tit-for-tat (or another less-than-fully rational) strategy. If there is an existing norm in the society which prompts agents to play tit-for-tat, and a majority of agents do in fact adhere to the norm, then by the same argument as above it would be optimal for all agents to do so. The important thing to note is that, once the society develops such a norm, it will be upheld in practice by agents out of their own self-interest.

We do not want to go in detail into the question of how a society would actually achieve this, in part because there is no obvious reason to thus endow the society with an independent and deliberate will. However, several possible directions may be pointed out.

First, norms may be enforced by patterns of social disapproval and social expectations. Social disapproval of agents who violate a norm can be displayed in various ways, some of which may not be too costly for the agents showing the disapproval, but the cumulative effect being quite onerous on the violator. The agents displaying disapproval may in turn not do so out of personal conviction, but simply because there is a meta-norm that in turn exposes them to disapproval if they do not punish the violator. The fact that elaborate structures of norms and public behavior can be supported on such a foundation has been

¹³ For various perspectives on this and on institutional economics in general, see Cook and Levi. See also Elster (1989a).

¹⁴ A good alternative assumption is that each agent believes that with some significant probability his partner is an automaton, who is programmed to play a particular strategy which may not be the rational one.

¹⁵ The choice of tit-for-tat is not entirely arbitrary. In a now-famous tournament conducted by Robert Axelrod (Axelrod:1984), this strategy turned out to be consistently more successful than other, more complex strategies. Axelrod’s experiment simulated an economy similar to the one that we are considering.

brilliantly explained by Timur Kuran in a recent book (Kuran:1995. See also the simulation results in Axelrod:1986). An extreme example of such enforcement is the practice of blood-feuds in many societies.

Secondly, individuals may become conditioned to act according to certain norms because of the process of their socialization.¹⁶ A child growing up in a family learns very soon that certain types of behavior are rewarded and other types are punished---this pattern being enforced by the parents and elders who indeed have the welfare of the family in mind. As the ambit of the child's interactions expand, e.g. at school, or in the neighborhood, he first tries those strategies which he has found to be successful in the past, and corresponding behavior is again upheld by adults and older children who are present. If all or most children in a society learn the same norms in this way, and if previously successful strategies are always tried first, then such norms will also obtain in the society at large.¹⁷ The subsequent social grouping of individuals is likely to be heavily influenced by the norms of behavior which are practiced in different segments of society. This would explain, for example, why individuals do not change residential locations in direct response to changes in economic circumstances. The teaching of children by parents is usually reinforced at the local or neighborhood level by the threat of social disapproval, which can be very effective at this level.

Thirdly, it is possible that norms which evolved in the past and have been practised for centuries become in some way genetically encoded in the population. Those societies which developed more efficient norms in the past are likely to have been more successful, and to have gained ascendancy over communities with less efficient norms. These latter societies would then degenerate in competition, and in time succumb to domination by the former ones, with the norms of the winners being gradually imposed on them. Thus the cooperative norms that we find governing extant societies do not indicate that there is some reason for these specific norms to arise without fail, but simply that societies have perished when these norms failed to arise.

In summary, there is much reason to modify or even renounce the rational behavior paradigm which forms the foundation of neoclassical economics. Even without claiming that people are irrational, we note that the paradigm requires that full rationality (and selfishness) is common knowledge. Once we allow that expectations regarding how other individuals will behave can diverge from this model, various equilibria become possible which are non-neoclassical in spirit. Besides, there is good reason to believe that a sense of socially nurtured morality does play a role in governing behavior, and there are reliable mechanisms (such as the family or local community) within which such behavior can be learnt. These environments are not anarchic, but are ruled by 'social planners' (parents, community elders) who indeed have social welfare as arguments in their objective function.

It then follows that these socialization processes have a serious impact on the economic functioning of the society. Societies in which these processes are strong are likely to suffer less from the undesirable effects of selfish behavior (e.g. crime), and will also need to allocate fewer resources to the policing of transactions. This is an area on which relatively little work has been done, but it is also an area which, I believe, would handsomely repay additional research.

In conclusion one should also make mention of a class of processes, known as evolutionary processes, by which institutional change can occur. The presumption here is that,

¹⁶ See Elster (1989b) for a general but convincing discussion, and Sugden (1989) for more specific examples.

¹⁷ For more on this line of thinking, see Alchian (1950), Boyd and Richerson (1985), and Nelson and Winter (1982).

in a complex economy, agents (or firms) do not engage directly in optimisation---which is costly because of the complexity of the calculations and because of the information requirements. Instead, they experiment at the margin with small changes, and to a larger extent copy the strategies of more successful agents. Both the experimentation and the copying are imperfect. This leaves open the possibility that unintended innovations may occur, and in turn be copied. The basic idea is that the subsection of agents which stumbles upon an innovation will perform better than the rest. Over time, the rest of the agents will copy this behavior, and, subject to parameters of the model, the innovation will “invade” the economy.¹⁸

5. Applications to Financial Markets

As already indicated in examples earlier, various non-market devices have evolved over time to induce coordination and cooperation. Others are constantly evolving. When agents do not have an intrinsic predisposition to cooperate, external devices become necessary. In general, these devices take the form of a credible precommitment, which guarantees that defection will result in significant loss for the concerned agent. In financial transactions, for example, the precommitment can take the form of collateral, which a lender can seize in case a borrower defaults. In other cases, punishment for breach of contract is legally enforced by the State. It is important to note that, in order to induce cooperation, it is not so important that the harmed parties be compensated, as it is that the offending party be penalised. If the penalty is sufficiently severe, defection will be forestalled. In this section we consider examples of institutional structures which have proved useful in generating precommitment, and analyse them in the light of strategic interaction and social mechanisms.

Example: ROSCAs.

Deterrence need not only occur through legal channels. In many cases, when the appropriate state-sponsored mechanisms are lacking, agents develop cooperative groups which are organised on the basis of the availability of extrinsic penalty mechanisms. An example of such groups is Rotating Savings and Credit Associations (ROSCAs). These are informal groups which function as follows: each period (usually month) every member contributes to the group a fixed amount of money. This sum is then given to one of the members, who thereby receives a large sum one month in return for small contributions over several months. A full cycle last as many months as there are members, and in the course of this time each member receives the pot once.

Clearly there is significant incentive to defect on the part of those members who receive their disbursement early. However, this does not happen often, and ROSCAs continue to function as effective institutions to pool savings in order to finance large purchases. The key to this is that members of a ROSCA are usually drawn from a group in which members are mutually dependent upon each other in many ways, and have strong social connections. So even if the ROSCA cannot punish a defecting member within its own rules, the defector can be punished using other social channels. Public knowledge that he is a cheater threatens to harm both the reputation of the offender as well as his access to normal social conveniences, and this acts as a deterrent. Since normal commercial lenders do not have access to such social deterrence mechanisms, they tend to be less efficient than ROSCAs in obtaining repayment. In this way, the one-time game of participation is embedded in the

¹⁸See the references in the previous footnote.

repeated game of day-to-day social interdependence. As a result, ROSCAs continue to play a regular role in every stratum of society.

Example: The Grameen Bank.

This principle of social pressure has been used very effectively in the financial arena to elicit loan-repayment in some countries, especially Bangladesh. The Grameen Bank, which is often cited as a signal success in the area of institutional design, has adopted the strategy of dividing its borrowers into groups based on close interconnections between the members. All members in a group are collectively responsible for loans taken by each individual. If there is a default, the entire group is penalised, in that no member of the group can get a loan in the future. The loans are attractive because they are made at rates much lower than the market. Thus the groups are eager to preserve the privilege of borrowing. Pressure on borrowers within the group has resulted in high rates of repayment, which in turn has enabled the bank to maintain low interest rates.

The example of the Grameen Bank demonstrates how an existing non-market institutional framework, based on neighborhood and kinship groups, can be adapted to serve the purpose of market-based enforcement. By delegating the responsibility of ensuring repayment to the group, the bank essentially decentralises the task of screening loan applicants and providing incentives, passing on these tasks to the group, which is much better placed than the bank to carry them out. The group has an incentive to prepay the loan because it is involved in a repeated game with the bank. An individual's decision to repay is reduced to a move in a game with the group. This game between the individual and the group is also repeated, in the sense that it is a part of ongoing social interactions (as in a ROSCA). The innovation of assigning responsibility to groups rather than individuals thus solves the problem that would arise if the bank were to deal directly with the individual, because the individual's interactions with the bank are less frequent.

A Policy Application: Reputation and the Development of Financial Markets

The lack of established financial markets is often cited as a major factor holding back entrepreneurial activity in LDCs. In Egypt, for example, a stock market has been established under the initiative of the government, and significant incentives are provided to firms who list themselves on the exchange, and several SOEs have in recent years been privatised through the exchange. Nevertheless, the role of the market remains primarily as a vehicle for get-rich-quick speculation, not as a steady source of finance for sound investment. Major financing is still raised through traditional channels, consisting, for most entrepreneurs, of personal contacts, and for an established few of bank loans.

The reason why it may be difficult to raise financing on anonymous markets is that potential investors are not well-placed to evaluate the true prospects of business ventures. The problem is simply explained by the following example. Suppose it is known that there are two projects in the market: a good project which costs \$2 and will return \$3 upon completion, and a bad project which costs nothing and yields no return. The owner of each project knows which one he has, but a potential investor (or financier) cannot distinguish between the two. Now if the investor is approached by a project owner for financing, he judges that the project facing him can be either the good or the bad with equal probability; hence the expected return from investing in the project is ($\text{half times } \$0 + \text{half times } \$3 = \$1.5$). Thus he would at most be willing to pay \$1.5 to obtain the entire equity in the project. But at this price for the entire equity, the owner of the good project makes a loss (since he has to finance the remaining \$0.5, and gets no return) and hence he would withdraw from the market. The owner of the

bad project, on the other hand, makes a profit, and would gladly offer his project at this price. The lack distinguishing of information leads the good project to self-select out of the market, and the bad one to stay in. If the investor foresees this, of course, he would be unwilling to purchase equity in any project, and the (stock) market will fail. This is an example of adverse selection.¹⁹

The failure of the stock market is in this case due to a lack of information on the part of the investor. It is easy to see that the investor would be willing to acquire the appropriate information even at a cost, as long as that cost is not too large. Typically, in economies with thriving stock markets, there are numerous firms and other established institutional agencies which, directly or indirectly, provide the necessary information to the potential investor regarding upcoming projects. This consists of mutual funds, investment banks, and underwriters, which indirectly disseminate information through their own actions, and ratings agencies which directly publicise estimates of the future profitability and creditworthiness of firms. Vigorously enforced regulation may also force firms to be forthright about their own future prospects.

However, the mere existence of an intermediary is no guarantee that the adverse selection problem will disappear. Suppose, in our example, there enters an agent who knows (is able to ascertain) the true value of each project that is offered, and is willing to sell this information. If the investor acquires this information, he will fund the good project, and he and the good entrepreneur will divide between them the profit of \$1. If the intermediary misrepresents information, however, then the bad entrepreneur can make a profit of \$2, since this is what the investor would be willing to pay for his project in the mistaken belief that it is the good one. Thus the bad entrepreneur would easily be able to bribe the intermediary to misrepresent information. The reason why intermediaries nevertheless survive and provide reliable advice in developed financial markets is that their continued credibility is dependent on reputation, which is functionally equivalent to capital. Ruining that reputation by cheating in one instance results in the forfeiture of a large stream of future profits, and is not justified by whatever gain would be made in that one instance.

For intermediaries in information to function properly, then, there must be a stream of future profits to look forward to, and a valuable reputation to lose. In a new and thin market, these conditions are missing. An incipient financial market may thus be caught in a vicious circle; potential intermediaries will be tempted to cheat because they do not foresee a significant stream of future profits which rewards integrity, because not many investors will enter the market, which in turn is because there is no reliable source of information. All else being equal, the difference between a nonexistent market and a thriving one may be the existence of intermediaries with an acquired reputation.

Given that intermediaries cannot already have a reputation when the market is new, how can this insight help in designing appropriate policy? Let us analyse the problem further. If intermediaries had a reputation to lose, and they expected the market to last long, then they would indeed provide their clients with sound advice, and this in turn would lead to the development of the market. However, when the payoffs from cheating are large, and there are several intermediaries in the market, we are faced with the prisoners' dilemma problem: each intermediary knows that the others are likely to cheat and therefore destroy the market, hence no individual intermediary has the incentive to sacrifice immediate profits in order to develop the market. But suppose that policy could be designed in such a way that individual intermediaries did indeed have something to lose---even though it were not reputation. Then each such agent would be a little more circumspect in jumping at dishonest gains, and each

¹⁹ This simple example is based on Akerlof (1970).

agent would expect the others to be more careful. Thus, even in absence of reputation, the market could function if all intermediaries had something to lose from the failure of the market.

Such losses could be inflicted, for example, in the following way. Suppose that each firm which registered itself for business as a broker or agent were required to pay a deposit to the stock exchange, which is refundable to the firm at the end of, say, ten years. If the firm is not in business at the end of those ten years (or has not conducted some prespecified volume of transactions on the floor for each year), then the deposit is simply forfeited. Then each firm does have something to lose if it ceases conducting business, and hence must function with enough honesty to keep itself in business for those ten years. But once a firm has been in business and functioned honestly for that length of time, it will have naturally acquired reputation, and will therefore continue to perform for that reason. Thus the refundable bond can in fact act as a substitute for reputation.

Conclusion

Throughout this paper, the reader may have obtained the impression that, while it is possible to identify an institution and the purpose it serves, and while we have generally been able to outline various types of situations where institutional mediation would be useful, there is no clear guideline regarding how one could go about systematically listing all institutions that exist in a society. Indeed, at this stage of its development, the study of institutions is still very far from yielding clear operational procedures which can be used to systematically identify institutional formations, and certainly even further from providing insights about how to implement and direct institutional change. It is appropriate to the development of a new theoretical construct that the primary focus is on identifying historical and contemporary instances of institutional arrangements, and on identifying processes that have driven institutional evolution in these specific instances. General propositions as there are, are ‘too indeterminate to bear empirical investigation’ (Harriss, Hunter and Lewis, p.7). While a few specific institutional forms---such as the organization of production in firms---have been studied in some detail, it is not clear how this would generalize. What is needed is some typology of institutional forms, which can direct the empirical researcher in terms of what to look for.

Secondly, significant further research is needed to understand human behavior in this context. There is now a reasonable body of evidence that individuals do not always act optimally and with conscious rationality, in part because the costs of determining the correct action in each instance would be too high. However, elements of rationality certainly inform the customary choices that they make, and at intervals lead them to reconsider their rules of thumb. A serious model of individual decision-making which takes these factors into account, and incorporates the cultural and social context which informs such decision-making, is essential if more sense is to be made of the economics of institutions.

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