European Review of Economic History, 4, 251–284. Printed in the United Kingdom © 2000 Cambridge University Press

The fundamental problem of exchange: A research agenda in Historical Institutional Analysis

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For individuals to enter mutually beneficial exchange relationships they have to recognise them as such and they have to be able to commit to fulfil their contractual obligations. The ways in which a society's institutions mitigate this fundamental problem of exchange determine its efficiency and distribution. This article calls attention to the need, ability, and promise of studying the historical evolution of institutions that mitigated the fundamental problem of exchange. It elaborates on the essence of this problem and the related institutions, and demonstrates the ability and importance of studying them by drawing on various studies of historical institutions. Our understanding of the different economic performances and evolutions of various societies over time can be greatly enhanced by studying how they mitigated the fundamental problem of exchange.

1. Introduction

A fundamental issue in economics is the allocation of scarce resources, products, and services. A basic economic premise is that this allocation is best made through voluntary exchange. Yet we know very little about the institutional foundations of markets in past and present societies. This article calls attention to the need, ability, and promise of studying the institutional foundations of exchange in economic history.

For individuals to enter into mutually beneficial exchange relationships they have to recognise them as such and they have to be able to commit to fulfil their contractual obligations. A lender will not lend without being assured that the borrower will not invest the money in a hopeless venture or take the money and run; an investor will not invest unless assured that the government will not *ex-post* expropriate his assets. In a modern economy a host of inter-related institutional features mitigate this fundamental problem of exchange (FPOE), thereby enabling exchange to take place. Institutions structure our relationships in a manner that enables us to benefit from transacting.

We know surprisingly little about the institutional foundations of exchange in past societies. What were their natures and origins? Did distinct institutions mitigate the FPOE in different premodern economies? Did the evolution of distinct institutions that mitigated the FPOE influence these economies' long-run economic performance? It is surprising that answers to these questions have hardly been explored, although exchange is central to the discussion in economic history of why some economies are rich and others poor. It is often asserted that the former, but not the latter, have been able to develop market economies in which economic exchange prevails. Nevertheless, economic historians have paid little attention to the nature and historical evolution of the institutional foundations of markets.

Until recently, analytically studying institutions governing exchange was curtailed by the lack of an appropriate theoretical framework, leading scholars to concentrate mainly on legal institutions provided by the state. Recent developments in microeconomic theory – game theory, information economics, transaction cost economics, and contract theory – enabled us to extend the scope of the analysis. These developments made it possible to go beyond the letter of the law and examine how the commitment, trust, and information required to conduct exchange are achieved through legal institutions, private-order institutions that do not rely on the state, and hybrids of the two forms.[1]

The ensuing analyses indicate that even institutions that emerge to foster economic efficiency by enabling exchange reflect broader social, political, and cultural processes of which they are an integral part. Hence, distinct institutions each of which entails different economic implications can emerge to govern the same transaction in different societies. In particular, once a particular institution has developed in a society, it can cause it to evolve along a particular institutional trajectory. Studying the nature and evolution of institutions that mitigated the FPOE in past societies will therefore be likely to further our understanding of their distinct economic performance through time.

The scope of this article does not permit extensive elaboration on the methodology – Historical (and Comparative) Institutional Analysis – which enables such investigation, or on the related concept of institutions that enables going beyond the view of institutions as legally enforced rules.[2] Instead, this article begins, in section 2, by elaborating on the fundamental problem of exchange. Section 3 delineates the implied research agenda. Section 4 demonstrates the feasibility of conducting comparative analysis of historical institutions that mitigated the FPOE by briefly presenting two

[1] For a recent survey of institutional analysis in economics and review of these developments, see Greif (1997b).

[2] For an extensive discussion see Greif (1997a, b, 1998a, b, 1998c).

related studies. Section 5 utilises these studies to argue that distinct institutions mitigating the FPOE may have distinct economic – efficiency and distribution – ramifications.

2. Economic performance and the fundamental problem of exchange

Ever since the days of Adam Smith, it has been recognised that the ability to exchange contributes greatly to economic efficiency. Exchange enables capturing gains from distinct endowments, natural comparative advantage, and the division of labour which brings about prosperity in various ways, such as by specialisation, learning by doing, and technological innovation (see, for example, Rosenberg 1963, North 1981, Sokoloff and Khan 1990). Hence, one can conjecture that changes in the ability to exchange influence economic performance over time. An enhanced ability to exchange fosters prosperity while a limited ability to do so breeds stagnation.

Economic theory places this conjecture at the centre of its framework: the First Welfare Theorem establishes that unlimited ability to exchange brings about Pareto-optimal allocations of resources, goods, and services. But acceptance of this conjecture is also implicit in economic history. Economic historians often invoke increasing or diminishing ability to exchange to explain historical episodes of economic expansion and stagnation. Central to our account of how the West grew rich, for example, are periods of expanding exchange relationships: the late medieval commercial revolution (see, for example, Lopez 1976), the rise of the Atlantic economies (Davis 1973), the commercial ascendency of the Dutch Republic and England, and the nineteenth century growth of the international economy (Kenwood and Lougheed 1999).

Hence, much research in economic history has been devoted to identifying the extent and nature of exchange relationships in various historical economies.[3] But this line of research naturally implies the importance of the following questions: What determines the extent to which members of a society enter into technically feasible and mutually profitable exchange? The key to addressing this question is to consider its inverse: Why would decision-makers not enter into mutually profitable exchange? A decision-maker would not enter into an objectively mutually profitable exchange unless assured that the exchange can indeed make him better off and that the other party would act in a manner that will make him better off. For example, a potential lender for a commercial endeavour would not lend unless he is *ex-ante* convinced that the endeavour is as likely to succeed as

[3] For various contributions, see Galenson (1981, 1989), Aerts and Eichengreen (1990), Neal (1990), Hatton and Williamson (1991), Hoffman (1991, 1996), Rothenberg (1992), Buchinsky and Polak (1993), Rosenbloom, (1994).

the borrower claims and that the borrower will *ex-post* be motivated to repay the debt if the endeavour succeeds.[4] In other words, a necessary condition for exchange is that one can *ex-ante* commit to being able and willing to fulfil contractual obligations *ex-post*.

The need for commitment reflects the essence of exchange as 'always sequential, namely, some time elapses between the *quid* and the *quo*' (Greif 1997a, p. 247–8). This sequentiality implies that it is possible for at least one party in the exchange to renege on his contractual obligations. Exchange is sequential, for example, in credit relationships, implying that a debtor can, *ex-post*, renege on his obligation to pay; in labour relationships, implying that one can, *ex-post*, renege on a wage payment; in agency relationships, implying that agents can renege on their obligations; and in social relationships in which one gives affection, leaving a person vulnerable to rejection. The sequentiality of exchange implies the fundamental problem of exchange (FPOE): one will not enter into an objectively profitable exchange relationship unless the other party can *ex-ante* commit to fulfil his contractual obligations *ex-post*.[5]

The fundamental problem of exchange can be explicitly presented using the one-sided prisoner's dilemma game (OSPD), also known as the game of trust. In this game there are two individuals, one of whom can initiate beneficial exchange, but in this case the other has the option of fulfilling his side of the deal (cooperating) or gaining even more by reneging. If reneging occurs, the initiator of cooperation is worse off than if he had not initiated cooperation.

In a game form: Player I can either initiate exchange or not. When he does not, both players get their reservation payoff of 0. If I initiates exchange, however, player II can decide whether or not to also exchange, or cooperate by fulfilling his contractual obligations. Exchange is efficient, yielding a total payoff of γ that (if player II exchanges) is allocated among the parties in a way that makes both of them better off than if they did not exchange. Player I gets $\gamma - W > 0$ and player II gets $W > 0$. But player II can gain even more, specifically $\alpha > W$, by reneging, leaving player I with

[4] One can be compensated for the risk associated with a particular exchange by getting a larger share in the *ex-post* expected gain. One would demand a higher interest rate to enter into a more risky loan. But unless the *ex-post* compensation is sufficiently large, one would not enter into a risky exchange.

[5] Clearly, transactions differ in the severity of this problem. Exchange relationships also differ along additional dimensions – asymmetric information or the ease of *ex-post* verifiability of actions by a third party. Similarly, some exchange relationships are easier to embody in a larger exchange relationship – repetition, more than one exchange, etc. – than others. These differences among exchange relationships are important – the attributes of an exchange determine the set of institutions that can potentially mitigate the associated commitment problem. The importance of commitment problems has been emphasised by Schelling (1960).

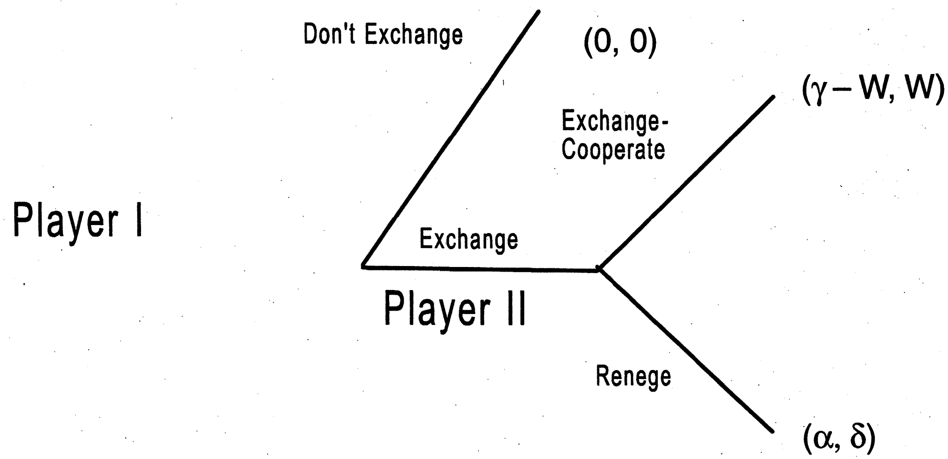

Figure 1. *One-sided prisoner's dilemma game.*

$\delta < 0$ which makes him worse off than had he not exchanged to begin with.

This game helps illustrate the essence of the FPOE. Common sense suggests that despite the inherent benefit of exchange, it will not take place. If player I initiates exchange, the best II can do *ex-post* is to renege. Player I, *ex-ante* anticipating this *ex-post* behaviour, will find it best not to initiate exchange to begin with. In the jargon of game theory, the only (sub-game perfect) equilibrium involves non-cooperation. In the absence of commitment, exchange will not take place.

The above game assumes, however, that the benefit from exchange is common knowledge among the interacting parties. In reality this is not always the case and to capture this we can extend the above OSPD of symmetric information to one of asymmetric information. Without loss of generality, assume that player I holds that there is only some probability that the exchange is indeed profitable (that is, $\gamma > 0$, as assumed in the above game). Unless player I maintains with sufficiently high probability that the exchange is profitable to him (that is, $\gamma - W > 0$), he will not enter into the exchange even if it is actually profitable. Now suppose that player II knows whether or not the exchange is profitable. Player I, however, cannot trust player II to reveal the true probability of profitability whenever player II stands to gain from misleading player I. In other words, in this extended game there may be no equilibrium in which player II's statement about the situation influences player I's assessment of it. In this case, to induce player I to enter into a mutually profitable exchange (which he, nevertheless does not perceive as such), player II has to be able to lend credibility to his claim regarding the exchange's profitability.

The extent to which members of a society will enter into exchange relationships, and hence the extent to which society will reap the benefits from them, depends on the degree to which the FPOE is mitigated in various transactions. The ability to benefit from exchange is determined by the ability to mitigate the associated fundamental commitment problem.

3. A research agenda: the role and nature of institutions

Institutions can and do mitigate the FPOE by fostering the ability of decision-makers to *ex-ante* commit to respect their contractual obligations *ex-post* and to reveal their ability to do so. They foster the ability to commit by linking past conduct with future reward, thereby reducing the benefit of misrepresenting information and reneging. To understand the extent of the exchange relationships into which decision-makers entered in a particular historical episode, therefore, necessitates studying the institutions that mitigated the FPOE in that time and place.[6]

Studying institutions that mitigate the FPOE with respect to a particular transaction requires us to examine how beliefs regarding the relationships between past conduct and future utility stream are created in that particular historical episode. This requires identifying the exact nature of the sanctions which would be imposed following a breach of contract, how the appropriate information is obtained and disseminated, who applies the sanctions, how the sanctioners learn or decide what sanctions to apply, why they do not shirk from their duty, and why the offenders do not flee to avoid sanctions.

Multiple institutions can usually govern a particular exchange. An impartial and effective legal system based on the coercive power of the state can punish a person who has reneged and increase the cost of misrepresenting ability and information. If the parties to the exchange believe that legal sanctions will prevail, player II will find it optimal to fulfil his contractual obligations and player I will believe that he will do so. Player I will then initiate the exchange. But private-order institutions that do not rely on legal sanctions can also enable exchange. Such institutions can be based, for example, on beliefs in social sanctions and the loss of economic reputation and future business because of bad past conduct. If the sanctions following reneging that such institutions imply are sufficiently high relative to the gains from doing so, exchange will take place.

The observation that sanctions, other than legal sanctions, can support exchange suggests the need to examine institutions while going beyond identifying them with legal rules specified and enforced by the state. The

[6] For simplicity of exposition the discussion emphasises the importance of *enabling* decision-makers to enter into exchange relationships and ignores the fact that *preventing* decision-makers from entering into various exchange relationships is often socially beneficial: e.g. Wright (2000).

view of institutions as legal rules is common in economic history following North and Thomas (1973) and North (1990), and it is complemented by the view of organisations as groups of individuals who together pursue the objective of changing such rules. This view is not adopted here because it is too restrictive for discussing the situations this work is concerned with, in which enforcement is endogenous. In such situations we cannot assume that people will follow rules because they are enforced by a non-strategic impartial legal system. All behaviour has to be endogenously accounted for.

Accordingly, economic institutions are defined here as a system of social factors – such as rules, beliefs, norms, and organisations – that guide, enable, and constrain the actions of individuals, thereby generating regularities of behaviour. When enforcement is endogenous, such a system and the associated behaviour have to be self-enforcing.[7] That is, the actual and expected behaviour of each individual leads others to behave and to be expected to behave in a manner motivating each individual to assume this expected behaviour to begin with. In other words, roughly speaking, the social factors that influence one's behaviour lead one to behave in a way that motivates others to behave in a manner causing these social factors to prevail. The structure that each individual faces induces him to take the actions that, on the aggregate level, create this structure.

Each social factor – rules, beliefs, norms, and organisations – has a specific role in the functioning of self-enforcing institutions that link past conduct and future reward. Rules guide and coordinate behaviour while beliefs and norms motivate individuals to follow them. Organisations – either formal ones such as parliaments and the courts, or informal ones such as communities and business networks – produce or influence the production of rules, harbour rules and make them known, contribute to the perpetuation of norms, and influence the set of beliefs that can prevail regarding a particular transaction.

To understand how organisations accomplish such tasks, we have to examine the motivation their members face. To understand why, for example, a credit bureau provides reliable information or why courts and the police enforce rules, one must examine the motivation of the decision-makers within them. Note that in this framework, political and legal organisations, such as parliament and the courts, have a similar function and have to be examined in a way that is comparable to other organisations, such as a credit bureau. Their actions – particularly their ability to initiate the use of coercive power – may be different from that available to other organisations, but the difference lies in the details and not the essence.

The above conceptualisation of institutions is a generalisation of the one commonly used and it enables extending the analysis beyond the confines of

[7] For additional conditions on such a system becoming an institution, see Greif (forthcoming).

the more restricted conceptualisation. In particular, this conceptualisation does not preclude state-enforced rules from being institutions in the restricted case of exogenous enforcement. In the more general case of endogenous enforcement, however, the analysis will differentiate between the rules of behaviour specified by the state, belief in their enforcement, organisations that generate these rules and support these beliefs, and how decision-makers within them are motivated. (The conceptualisation builds on, among others, Schotter 1981, Sugden 1986, 1989, and Greif 1994a, forthcoming.[8])

In the past and present, institutions – self-enforcing systems of social factors generating regularities of behaviour – determine the extent to which decision-makers enter into mutually profitable exchange relationships. Yet, we know surprisingly little about the nature, origin, and implications of the institutions that enabled exchange in past economies. What were the institutions that mitigated the FPOE in various historical societies? What were their efficiency and distributional consequences? Did some societies achieve higher prosperity because of their superior ability to mitigate the FPOE and their ability to effectively respond to the changing needs of exchange?

Clearly, these questions have merit only if institutions differ in their efficiency and distributional consequences. If institutions always emerge endogenously and enable the extracting of all gains from exchange, then the details of institutions that existed in a particular historical episode would be of secondary importance. Institutions then would reflect the needs of exchange and not independently influence it. But because we know very little about the nature of historical institutions, evaluating this issue requires further empirical analysis. What were the efficiency and distributional implications of institutions that mitigated the FPOE in various past economies? Did historical societies differ in the efficiency implications of their institutions that mitigated the FPOE?

Our limited knowledge of how FPOEs were mitigated in past societies restricts our ability to understand the processes of growth and decline in past economies. We have an incomplete understanding of how these economies functioned and how they differed from each other. For example, a lively current controversy in economic history is whether premodern China was as developed as Europe, and if Europe's final advance was achieved because of European imperialism. The debate centres around comparing aggregate, macro-level variables. While this line of argument is valuable, it ignores the possibility that exchange in these economies was based on different institutional foundations. Even if one observes, for example, that two economies had the same level of GDP *per capita*, it does not mean that their economies were similar in their potential to grow based on expanding their economic agents' ability to exchange.

[8] For various meanings of institutions in economic history and further elaboration on the meaning of the terms 'institutions' and 'organisations' used here, see Greif (1997b and forthcoming).

Studying institutions that mitigated the FPOE in various times and places presents a methodological problem because institutions can be idiosyncratic. This limits the ability to use the statistical tools that are a hallmark of modern economic history. Furthermore, examining institutions does not lend itself to statistical analysis because the effectiveness of contract enforcement institutions is usually best judged like that of peacetime armies – by how little they must be used. Thus, in reading the historical records to determine whether a major role of a particular institution was to ensure contract compliance, the number of instances of enforcement is not a useful indicator. An institution that effectively mitigates the fundamental problem of exchange implies, at the limit, that all contractual obligations will be fulfilled. Similarly, the implications of institutional and organisational features that match parties to exchange and provide information are often not directly observable.

These difficulties are among the reasons why, until recently, institutional analysis concentrated on legal rules. But the above discussion suggests that FPOE can be mitigated, based on institutions which do not depend on the legal system. Even in modern economies, private-order institutions mitigate the FPOE reflecting the limited effectiveness of legal institutions (Greif 1997a). Information costs, the difficulty of verifying past actions, the inability to write comprehensive contracts, and the boundaries of the state's jurisdictional power limit the state's ability to support exchange. Arguably, these deficiencies of the legal system, and hence the prevalence of private-order institutions, were even more pronounced in past economies.

Our ability to study private-order, legal institutions, and their hybrid forms has been recently enhanced by developments in microeconomic theory such as game theory, contract theory, and informational economics. These developments make it possible to analytically study the non-observable aspects of institutions (such as beliefs) while generating predictions that can be refuted by the data. Theory now enables us to study unobservable institutional elements while upholding the long scientific tradition of economics: testing hypotheses and producing arguments that can be falsified by the data. At the same time, these theoretical frameworks lend support to the assertion that institutional analysis is inherently historical. They indicate that the set of institutions leading to a particular outcome is very sensitive to the details of the historical context and multiple institutions can prevail in a given situation.

Studying institutions using these theoretical frameworks thus requires an interactive approach in which historical and theoretical analyses are combined. Historical analysis is required to reveal the details of the situation, generate hypotheses regarding relevant institutions, highlight the process of institutional selection, and provide the evidence required to evaluate theoretical predictions. At the same time, theory is needed to substantiate or refute various hypotheses by evaluating the logical consistency of the argument, revealing lines of causation, generating predications, and indicating an institution's implications.

The scope of this essay does not permit a detailed presentation of this interactive approach – Historical Institutional Analysis.[9] Nor does it permit further general elaboration on how institutions mitigate the FPOE. Hence, I will only briefly present historical analyses which further support the claim regarding the benefit and possibility of studying institutions that mitigate the FPOE.

4. Historical institutional analysis of institutions that mitigate the FPOE

The examples I will provide draw on my research on the Late (or High) Medieval Commercial Revolution, the developmental epoch stretching from the eleventh to the fourteenth centuries. Concentrating on institutions that mitigated the FPOE at this time and place seems appropriate for several reasons. This period witnessed the re-emergence of Mediterranean and European long-distance trade after an extended period of decline despite the absence of appropriate legal enforcement provided by the state. Furthermore, this commercial expansion is considered a turning point in the economic history of Europe. Institutional development during it had a lasting impact on later European development (Reynolds, 1952) while 'Western wealth began with the growth of European trade and commerce which started in the twelfth century in Italy' (Rosenberg and Birdzell, 1986, p. 35).

Needless to say, the following discussion has to be short and incomplete and the reader can further consult the papers on which it is based.[10] In particular, the discussion does not present the explicit models used in these studies. These models permit going beyond 'narrative' institutional history by making arguments exact, revealing lines of causality, generating predictions that can be confronted with the evidence, and enabling inter-institutional comparison. My hope is that the discussion will, nevertheless, illustrate the ability to conduct a comparative analysis of private-order historical institutions and will lend credibility to the assertion that we should examine the long-run efficiency implications of distinct institutions.

4.1. Institutions that governed the relations between rulers and alien merchants

Since the political units during the late medieval period were relatively small, spatial specialisation in production required trade across political

[9] See references in fns 2 and 3.

[10] See in particular Greif (1989, 1994a, b, 1996) and Greif *et al.* (1994). The discussion in this section draws heavily on a similar summary presented in Greif (1998b).

boundaries. But a difficulty arose: any medieval ruler faced the temptation to abuse the persons and property of alien merchants who frequented his realm, having a local monopoly over coercive power. Without an institution that enabled the ruler to commit *ex-ante* to secure their rights, alien merchants were not likely to frequent that ruler's territory, thereby depriving its population, the ruler, and the merchants of the benefits of trade. The relation between the expected security of property rights and trade expansion was clear to the English King, Edward I, who in 1283 remarked, 'Many merchants [fearing lack of protection] are put off from coming to this land with their merchandise to the detriment of merchants and of the whole kingdom' (English Historical Documents 1975, p. 420).

Since trade relationships were expected to repeat, one may conjecture that a self-enforcing institution employing a bilateral reputation mechanism (in which the ruler is deterred from abusing, expecting that a merchant whose rights were abused would cease trading), or employing an uncoordinated multilateral reputation mechanism (in which a larger subgroup than the abused one would cease trading), could surmount this commitment problem. Since these mechanisms create an *ex-ante* linkage between past conduct and the future income stream, a ruler who highly valued future income can credibly commit himself *ex-ante* not to abuse merchants' rights *ex-post*.

To examine these hypotheses, Greif *et al.* (1994) modelled this situation as a game, taking into account that a ruler's gain from taxation of the marginal trader declines when trade volume increases. The analysis indicates that although each of the above mechanisms can support some level of trade, neither can support the *efficient level of trade* (no matter how the gains from trade are divided among the merchants and the ruler, nor how patient the ruler). The bilateral reputation mechanism fails because, at the efficient level of trade, the value of the future trade of the 'marginal' traders to the ruler is zero, and hence the ruler is tempted to abuse their rights. In a world fraught with information asymmetries, slow communication, and plausibly different interpretations of facts, the multilateral reputation mechanism is prone to fail for a similar reason.

Theoretically, to overcome the ruler's commitment problem at the efficient level of trade, an organisation that *coordinates* traders' responses is needed. When coordination is achieved, the threat by *all* the merchants to cease trading if *any* merchant is abused enables the ruler to commit – given that the merchants' threat of retaliation is credible. Unfortunately, however, the threat is not credible because it entails a complete boycott where trade would shrink below the level at which, for example, a bilateral reputation mechanism is effective. Hence some traders would renegotiate with the ruler to resume trading and impede the coordinating organisation's ability to surmount the commitment problem by reducing the penalty threatened to be imposed on the ruler.

The need to take special measures to prevent shipments to an embargoed city are confirmed by the historical evidence. For example, in 1284 a German trading ship was attacked and pillaged by the Norwegians. The German towns responded by imposing an embargo on Norway. The exportation of grain, flour, vegetables and beer was prohibited. According to the chronicler Detmar, 'there broke out a famine so great that (the Norwegians) were forced to make atonement'. The temptation for an individual merchant to smuggle food to Norway in this situation is clear. To sustain the embargo, the German towns had to post ships in the Danish Straits.[11] Similarly, in 1358 the German towns imposed an embargo on Bruges and the city attempted to defeat it by offering merchants from Cologne extensive trade privileges.[12]

Thus to support the efficient level of trade, an organisation with the ability to coordinate responses *and* to ensure the traders' *compliance* with boycott decisions is needed to supplement a multilateral reputation mechanism. The traders must have some mechanism that makes the threat of collective action credible. The formal analysis thus supports De Roover's (1965) conjecture that the role of the merchants' formal organisation was, 'of course, to provide collective protection in foreign lands, to secure trade privileges, if possible, and to watch over the strict observance of those already in effect' (p. 111).

Historical evidence indicates that during the late medieval period an institution with these attributes – the *merchant guild* – emerged and supported trade expansion and market integration.[13] Merchant guilds exhibited a range of organisational forms – from a subdivision of a city administration like the Italian city-states, to an inter-city organisation such as the German Hansa. Yet their functions were the same: to ensure the coordination and internal enforcement required to sustain the credibility of the beliefs in collective action. These organisations, the associated beliefs, and the rules that coordinated expectations on what actions by the ruler would be considered transgressions, were the social factors that together constituted the institution that governed the relationships among rulers and merchants.

For example, a merchant guild's strategy of conditioning future trade on adequate past protection, the use of ostracism to achieve security (rather than privileges or low prices), and the relationship among those acquiring information, coordination, and the ability to boycott, are reflected in the agreement made in 1261 between the Flemish merchants from Ghent,

[11] Dollinger (1970), p. 49. See also his description of the embargo on Novgorod (p. 48). Anyone who broke the embargo was to suffer the death penalty and the confiscation of his goods.

[12] Dollinger (1970), pp. 65–6.

[13] This discussion relates to merchant guilds and not craft guilds. Furthermore, not only is the definition of merchant guilds here much wider than is customary, but no claim is made that the above was the only function of guilds.

Ypres, Douai, Cambrai, and Dixmude who purchased English wool. 'For the good of the trade', they decided that if it should happen that 'any cleric or any other merchant anywhere in England who deals with sales of wool deals falsely with any merchant in this alliance . . ., by giving false weight or false dressing of the wool or a false product, . . . and if they do not wish to make amends, we have decided that no present or future member of this alliance will be so bold as to trade with them' (Moore 1985, p. 301). To make this threat of boycott functional, they 'decided that there will be in each of these cities one man to view and judge the grievances, and to persuade the wrongdoers to make amends' (ibid.).

Flemish regulations from 1240 illustrate recognition of the need to provide all traders with an incentive to support a boycott. A merchant who ignored the ban imposed by the guild on another town was expelled, losing his rent stream. 'If any man of Ypres or Douai shall go against those decisions [made by the guild] . . . for the common good, regarding fines or anything else, that man shall be excluded from selling, lodging, eating, or depositing his wool or cloth in ships with the rest of the merchants. . . . And if anyone violates this ostracism, he shall be fined 5s' (ibid., p. 298).

The German Hansa is perhaps one of the best examples of an institution that fostered trade expansion by limiting, in a self-enforcing manner, the rulers' ability to predate. For historical reasons, membership in the basic organisational unit that coordinated the activities of German merchants abroad – the *Kontor* – was not conditional on residency in one particular town. Any German merchant who arrived in a non-German city could join the local *Kontor*. A *Kontor* had the same function as the guild in coordinating the responses of the German merchants in disputes with the town. It lacked the capacity to punish merchants in the towns where they resided, however, weakening its ability to enforce sanctions against its members.

In 1252 a *Kontor* of German merchants obtained extensive trading privileges from the city of Bruges (Flanders), which was the main trading centre of northern Europe at that time. The *Kontor* was led by six aldermen elected by the German merchants present in the town – two from each region of Germany.[14] Despite promises to the contrary, the property rights of alien merchants in Bruges were continually abused. The situation is described in a document dated 1280, reporting that 'it is unfortunately only too well known that merchants travelling in Flanders have been the objects of all kinds of maltreatment in the town of Bruges and have not been able to protect themselves from this' (Dollinger 1970, p. 383).

An embargo imposed by all alien merchants on Bruges from 1280 to 1282 secured the property rights of the Italian and Spanish traders, but failed to

[14] Weiner (1932), p. 218; De Roover (1965), p. 114; Dollinger (1970), p. 86.

secure the German traders' rights. This failure was due to different mechanisms for contract enforceability available to the German and the other traders. The relatively large and well-organised political units of the Italian and Spanish merchants provided them with a state-backed mechanism to supplement the self-enforcing relations between them and Bruges, by making their threat of future trade embargoes credible. In contrast, because the *Kontor* encompassed only the German merchants actually present in Bruges, rather than all the potential German traders who might want to trade during a boycott, its threat of sanctions against Bruges was not credible.[15]

Another embargo by the German merchants from 1307 to 1309 was required to force Bruges to respect their property rights. Its successful conclusion enabled the commerce between Flanders and Germany to flourish and expand for the next 50 years (Dollinger 1970, p. 51). What had changed between 1280 and 1307 was the ability of the German towns to coordinate their responses and enforce their embargo decisions on each other. A milestone occurred in 1284 when the Wendish German towns imposed an embargo on Norway. Merchants from the city of Bremen refused to cooperate in the embargo, and the other German towns excluded Bremen's merchants from all German *Kontore*.[16] The German towns had achieved the coordination needed to exclude one of their members from the economic rent generated by their common activities. The ability to exclude, in turn, was used to make their decisions self-enforcing. It is important to note, however, that this self-enforceability was used to motivate each town to employ its authority as a political unit to ensure that its merchants would not break the embargo. To sustain the embargo of 1284, for example, the German towns posted ships in the Danish Straits to prevent any German merchant from smuggling goods to Norway (Dollinger 1970, p. 49).

The importance of the German towns' coercive power over their merchants in strengthening the operation of a multilateral reputation mechanism that governed the relations between these merchants and Bruges is apparent when these relations came under strain. The war between England and France around the middle of the fourteenth century increased the cost to Bruges of securing the German traders' property and lives. Increasing the level of protection required the Hansa to enhance its ability to impose a trade embargo on Bruges and to demonstrate this ability. In 1356 the German Hansa held its first *Diet* (assembly of representatives from all the Hansa's towns), and its authority over the *Kontor* of Bruges was declared. As the prominent historian of the Hansa, F. Dollinger, has noticed, '[I]n law, and not only in fact, the towns, acting through the general Diet, were

[15] Regarding the embargo of 1280 and its (partial) failure, see Dollinger (1970), pp. 48–51.
[16] Dollinger (1970), p. 49; Weiner (1932), p. 219.

establishing their authority over their merchants in foreign ports' (Dollinger 1970, p. 69).

The enhanced ability of political units to exercise their coercive power over their merchants fostered the operation of the self-enforcing institution that governed the relations between these merchants and another political unit, the city of Bruges. In the Hanseatic embargo against Bruges in 1358, it was announced that any disobedience, whether by a town or an individual, was to be punished by perpetual exclusion from the Hansa. Bruges attempted to defeat the embargo by offering trade privileges to individual cities, including both non-Hanseatic ones like Kampen, and a Hanseatic one, Cologne. The non-Hanseatic cities accepted Bruges's terms, but Cologne refused to cooperate. The embargo proved a success and, in 1360, Bruges came to terms with the Hansa.[17]

The institution of the German Hansa was now fully formed. It governed the relations between German merchants, their various towns, and the foreign towns with which they traded. It was based on a combination of self-enforcing and state-enforced mechanisms that, at least for awhile, advanced exchange. The Hansa's leadership coordinated and enforced cooperation between German merchants and towns, one that served – at least for some time – the interests of all sides.

4.2. Institutions that governed the relations between merchants and overseas agents

During the late medieval period market expansion and integration were facilitated by the employment of overseas agents who enabled merchants to reduce the cost of long-distance trade by saving the time and risk of travelling, diversifying sales, and so forth. The contribution of agency relations to reduce the cost of trade and hence to foster market integration has been recognized in the context of many premodern trading systems.[18] For agency relations to promote efficiency, however, overseas agents had to have control over a merchant's capital abroad, enabling them to act opportunistically and expropriate that capital. Hence in the absence of an institution that limited opportunism, merchants would not hire agents. Indeed, Cipolla has pointed out that the contractual problem associated with agency relations could not be resolved by the legal system or the anonymous market. An agent who traded using someone else's capital 'could easily have disappeared with the capital or cheated in business conducted in far-off markets where none of his associates had any control' (Cipolla 1980, p. 198).

[17] Dollinger (1970), p. 66. For further details of this embargo, see Dollinger (1970), pp. 63–6, and Weiner (1932), p. 220.

[18] See for example, Lopez and Raymond (1955), p. 174; De Roover (1965), pp. 43, 45ff, 70ff; Postan (1973), pp. 66ff.

What were the institutions that governed agency relationships during the late medieval period? The institution that governed agency relations among the Maghribi traders who operated in the Muslim Mediterranean during the eleventh century has recently been examined (Greif 1989, 1993). The Maghribis were the descendants of Jewish traders who during the tenth century had left the increasingly politically insecure surroundings of Baghdad and emigrated to North Africa. By the eleventh century the Maghribis traded all around the Mediterranean.[19]

Game theoretical and historical analysis suggests that agency relations among the Maghribis were governed by an economic institution that can be referred to as a *coalition* – a non-anonymous institution based on a multilateral reputation mechanism. The organisational feature that at the same time made the coalition possible and reflected its operation, was the Maghribi traders' group. This group enabled beliefs in collective punishment to prevail and it harboured and produced the information and rules required for the functioning of the coalition.[20]

The Maghribis employed each other as agents, and they all expected that merchants would hire only group members as agents, and that all of them would cease employing an individual who had cheated a coalition member. Their social and commercial network provided the information required to detect and announce cheating, and the multilateral punishment was self-enforcing since what kept an agent honest in his dealings with a specific merchant was the fear of losing the rent stream available to him from his future dealings with *all* the Maghribis. Hence, if it was expected that a specific agent would not be hired in the future, he did not stand to lose the value of future relations with the Maghribis if he was caught cheating. Therefore, to keep such an agent honest, a Maghribi merchant had to provide him with a rent much higher than the one that would have kept an alternative agent honest. The merchant had to pay this unusually high rent in order to make the future value of their relations high enough to induce the agent to be honest in the absence of collective punishment. Since that implied a reduction in the merchant's own profit, each merchant was induced to hire only agents who were expected to be hired by others, and the collective punishment became self-enforcing.

Multilateral punishment within the group enhanced efficiency and profitability relative to bilateral punishment (in which only the trader who was cheated retaliates), since it enabled the employment of agents even when the relationship between a specific merchant and agent pair were not

[19] For a general introduction to the Maghribi traders and the *geniza* documents that reflect their trade, see Goitein (1967), Introduction; and the entry '*Geniza*' in Houtsma (1978), vol. 3, pp. 987–9.

[20] Due to space limitation the following discussion does not present the related rules. For their discussion, see Greif (1993).

expected to recur. The resulting additional gains from cooperation, the value of the information flows, and the expectations concerning future hiring ensured the exclusiveness of the coalition. That is, Maghribis were motivated to hire and to be hired only by other Maghribis, and non-Maghribis were discouraged from hiring Maghribis.

Direct and indirect evidence demonstrates the operation of the Maghribi traders' coalition. Direct evidence is explicit documentary statements on various aspects of the coalition, such as the operation of the expectations that governed employment relations, the economic nature of the punishment inflicted on cheaters, the linkage between past conduct and future economic rewards, the interest that all coalition members took in the relationship between a specific agent and merchant, and so forth. For example, evidence regarding the collective punishment of a cheater is found in two letters dated 1055. According to the letters, an agent who lived in Jerusalem, Abun ben Zedaka, was accused (although not charged in court) of embezzling the money of a Maghribi trader. When word of this accusation reached other Maghribi traders, merchants as far away as Sicily cancelled their agency relations with him.[21] In the first decade of the eleventh century, Samhun ben Da'ud, a prominent trader from Tunisia, sent a long letter to his business associate, Joseph ben 'Awkal, of Fustat. The letter reflects conditioning future relations upon past conduct – the essence of the reputation mechanism. Joseph made this point clear when he made his future dealings with Samhun conditional upon his record: 'If your handling of my business is correct, then I shall send you goods'.[22]

Indirect evidence – namely, confirmation of predictions generated under the assumption that a coalition governed agency relations – also supports the hypothesis that agency relations were indeed governed by a coalition. Such predictions are with respect to, for example, the type of business contracts, the social character of the traders' group, accounting procedures, and avoidance of establishing agency relationships with non-Maghribis, even when these relationships were considered by them to be – ignoring agency cost – very profitable.

For example, the Maghribi traders were familiar with five forms of business association: sea loans, *commendas*, partnerships, formal friendships, and factor relations. A sea loan was a loan for fixed interest. Its repayment was contingent upon safe arrival of a ship or successful completion of a voyage. *Commendas* were usually established between two parties – one who provided the capital, and one who provided the work – in the form of travelling and selling the merchandise overseas. The parties allocated the profits and losses according to a sharing rule specified at the time the *commenda*

[21] TS 13, J 25, f. 12; TS 12.279; see also TS 8, J 19, f. 23; all published by Gil (1983b), vol. 3, pp. 218–33.

[22] Ibid., 13, a, l. 41: Stillman (1970), no. 16.

was established. A partnership brought together two or more parties who invested capital and labour, though not necessarily in equal shares. The essence of a formal friendship relationship was that two traders operated in different trade centres, providing each other with trade services in their respective centres. Neither received pecuniary compensation. This exchange of services was not based on emotions, nor was it a reciprocal exchange; rather it was purely a business matter. The relationship was initiated by an agreement and could be terminated by either party at any time. As long as the relationship was in force, however, each party was bound to provide his formal friend with trade services. A factor provided trade-related services to an absentee trader, probably for a commission.[23]

Yet the Maghribi traders mainly used partnerships, friendships, and factor relations.[24] In literally every business letter they are mentioned, while *commenda* relations are hard to find. In twelfth-century Italy the situation was different; agency relations mainly took the form of a *commenda*.[25] How can this difference be explained? Why did the Maghribi and Italian traders, who were familiar with the same forms of business association, utilise different forms?

Furthermore, agency relations among the Maghribis were characterised by flexibility. Sedentary traders served as agents for those who travelled, and *vice versa*. Wealthy merchants served as agents for poorer ones, and *vice versa*. Usually a trader served as an agent for several merchants, while receiving agency services from them or other traders.[26] This flexibility stands in sharp contrast to practices in twelfth-century Italy. Italian traders also adopted *commendas* and established partnerships. More often than not, however, *commenda* relations were established between wealthy merchants and ambitious young travelling traders, while partnerships were established mainly to organise common ownership and agency relations within a family firm.[27] Why did Maghribi traders serve as agents and merchants simultaneously? Why were agency relations so flexible?

To comprehend this observation one has to note that among the Maghribis it was expected that if an agent who had cheated employed other Maghribis as agents, they were free to cheat him without being punished. These expectations are reflected in a document dated 1041/42. In this letter, a trader from Fustat accused his Tunisian agent of having failed to remit the revenues from a certain sale. As a result of the accusation, so the agent complained, 'the people became agitated and hostile to [me] and whoever owed

[23] For additional discussion, see Greif (1989).

[24] Goitein (1970); Goitein (1973), pp. 11ff.; Gil (1983b), vol. 1, pp. 216ff.

[25] See for example, De Roover (1965).

[26] See, for example, the business relations described in Michael (1965), Stillman (1970).

[27] Lane (1944), pp. 178 ff; Sombart (1953), pp. 31ff; Lopez and Raymond (1955), pp. 174, 185–86; De Roover (1965), pp. 51ff.

[me money] conspired to keep it from [me]'.[28] If such expectations prevail within a coalition they create a capital premium; they increase the returns on a member merchant's capital since it reduces the wage that a merchant has to pay his agent to keep him honest. Thus a member merchant will hire another member merchant as his agent. The wage that has to be paid to such a merchant-agent is lower than the wage that has to be paid to a trader who acts only as an agent, since when considering cheating, the merchant-agent will take into account the fact that he will also lose the capital premium available to him. His own member agents will cheat him, and according to the implicit contract within the coalition, they will not be punished.[29]

This theoretical observation leads to a testable prediction and is a key in explaining the above phenomena. Since the implicit contract within the coalition creates a capital premium, merchants prefer to utilise other merchants as their agents. This preference may be reflected in the forms chosen for business association; agency relations will be organised through forms that require agents' investments. Indeed, the common denominator of the forms of business association utilised by the Maghribi traders is that both parties invested in trade. In Italy, one may conjecture, agency relations were not organised within a coalition and thus a merchant preferred to employ an individual as his agent whose income from his alternative occupation was the lowest. Thus, merchants utilised agents through *commenda* relations.[30]

Organising agency relations within the coalition and the motivation it provided for merchants to hire other merchants as their agents, also explains why traders served as both agents and merchants simultaneously and why agency relations were as flexible as they were. More generally, the reliance on capital premium determined the social characterisations of the Maghribi traders group. One does not observe the existence of two separate 'classes' among them – an agents' class and a merchants' class. Socially, the Maghribi traders group was a homogenous group of middle-class traders, each operating as both a merchant and an agent at the same time.

Besides traders from the Muslim world, Italian traders were very active in Mediterranean trade after the eleventh century. Institutions that governed agency relations also emerged among them, although a different political, social, and cultural history seems to have led to the emergence of a different institution – the patron system – based on bilateral reputation and state

[28] Bodl. MS Heb a 2 f. 17, Sect. D, Goitein (1973), p. 104.

[29] An agent-merchant may avoid these losses by employing a non-member agent. This requires a larger premium, however, and implies a reduction in the value of the merchant's capital.

[30] The cost of an honest agent is lower, the lower his income from his alternative occupation (his reservation utility). The Italian merchants preferred to hire agents without capital, and therefore they could not utilise friendships and partnerships in agency relations.

enforcement (Greif 1994a). In other words, among the Genoese an agent was induced to be honest by the fear that, if he was not, his relations with a particular merchant (who could have represented a family or even a clan) would be terminated. Furthermore, the legal system contributed to inducing honesty by providing contract registration facilities in many trade centres, specifying a minimum rate of return in case accounts were not furnished, and holding an agent's property and family hostage until the agent's return (Lattes 1939, pp. 77, 154).

The nature of the historical sources available for Genoa provide only indirect evidence regarding the operation of the patron system. Among the theoretical observations underpinning the evidence is that, when agency relations are governed by the patron system, the wage that has to be paid to an agent to induce honesty declines with the agent's most profitable alternative. Since this alternative is likely to increase with the agent's capital, under the bilateral reputation mechanism merchants are not likely to hire other merchants as their agents.[31] In other words, when agency relations are governed by the patron system we are likely to see a merchants' 'class' and an agents' 'class'. Note that this prediction contrasts sharply with the situation when agency relations are governed by a coalition inducing merchants to hire other merchants as their agents.

Indeed, the historical records indicate that classes and inflexibility in agency relations prevailed in Genoa but not among the Maghribis. The difference in the social structures of the two groups can be assessed using an 'agency measure', defined as the number of times a trader operated as an agent divided by the number of times a trader operated as either a merchant or an agent. It equals one if the trader was only an agent, zero if he was only a merchant, and some intermediate value in between if he was both a merchant and an agent. In 175 letters written by Maghribi traders in which 652 agency relations are reflected, 119 traders appear more than once, and almost 70 per cent of them have an agency measure between zero and one. Furthermore, the more a trader appears in the documents, the more likely he is to have such an agency measure.[32]

In contrast, agency measures calculated from various cartularies reflect this assertion. For example, only 21 per cent of the 190 trader families mentioned more than once in the cartulary of Giovanni Scriba (1155–1164) [1935] have an agency measure between zero and one, and in value terms only 11 per cent have this agency measure.[33] All the others were either merchants or agents, but not both. This finding is in accordance with the

[31] Yet the merchant would want to employ an agent with wealth that could be confiscated by the legal system, in case the agent embezzled the capital outright.

[32] The nature of the sources precludes calculating a value-based agency measure for the Maghribis. See Greif (1994a).

[33] Krueger (1957) concluded that only 6 per cent (36 traders) in Giovanni Scriba functioned as both agents and merchants.

impressions of scholars who examined the social structure of agency relations in Italy in general. De Roover (1965) has noted that in general wealthy merchants, who rarely if ever functioned as agents, hired relatively poor agents, who rarely if ever functioned as merchants (pp. 51–2). Similarly, Byrne (1917) concluded that during the late twelfth century, 'as a rule' the Genoese agents were 'not men of great wealth or of high position' (p. 159). This vertical character of the Genoese social structure is also seen in the forms of business association through which agency relations were established. In sharp contrast to the Maghribis, the Genoese mainly used *commenda* contracts, which were, by-and-large, established between two parties, one providing capital and the other providing work in the form of travelling and transacting overseas.[34]

If indeed the Genoese merchants were motivated to hire relatively poor agents and provide them with a wage above their opportunity income, then in the long run it was likely, *ceteris paribus*, to provide a better opportunity for 'upward' mobility to poorer individuals. Indeed, the Genoese sources reflect a dynamic of wealth distribution that conforms to the theoretical prediction. Wealth transfer is reflected in a declining concentration of trade investment and the increase over time of trade investment made by commoners (that is, non-nobles). In the cartulary of Giovanni Scriba (1155–1164) [1935] trade was concentrated mostly in the hands of a few noble families, and less than 10 per cent of the merchants invested 70 per cent of the total. In the cartulary of Oberto Scriba (1186) [1940], 10 per cent of the families invested less than 60 per cent. In 1376, the only year for which, to the best of my knowledge, data are available in the secondary literature, commoners who paid customs in Genoa exceeded nobles (295 v. 279), and the share of the latter amounted to only 64 per cent of the total.[35] The affairs of Ansaldo Baialardo, who was hired in 1156 by the noble Genoese merchant, Ingo della Volta, reflect the fact that agency relations shifted wealth distribution. From 1156 to 1158 Ansaldo sailed abroad as Ingo's agent, and by investing only his retained earnings he accumulated the sum of 142 lire (a house in Genoa cost about 40 lire).[36]

The hypothesis that the above two distinct institutions governed agency relations among the Maghribis and Genoese is further indirectly substantiated by indicating the rationale behind the distinct evolution of business organisations (Greif 1994a, 1996). For example, when agency relations are governed by a reputation mechanism the higher is the probability that an

[34] Krueger (1962). For general discussion, see, for example, De Roover (1965). The difference in forms of business association between the two merchant groups does not reflect diverse knowledge; see Lieber (1968).

[35] Kedar (1976), pp. 51–2. De Roover (1965) argued that agency relations in Italy facilitated wealth transfer.

[36] On Ansaldo, see De Roover (1965), pp. 51–2. House: Giovanni di Guiberto (1200–1211), nos. 260, 261.

honest agent will be rehired, and the lower the probability that a cheater will be rehired, the lower the wage that a merchant has to pay his agent. Within a coalition this wage reduction is achieved by collective punishment – honesty in relations with one merchant implies a high likelihood of being hired by another merchant, while cheating one merchant leads to termination of agency relations with all merchants. When agency relations are governed by the patron system, however, this is not the case and each merchant is motivated to reduce the wage by credibly signalling that he will operate through an agent for many periods.

This theoretical prediction reveals the rationale for distinct organisational developments among the Maghribis and the Genoese. When members of these groups first began trading in the Mediterranean, it was common for a trader's son to start operating independently during his father's lifetime. The father would typically help the son until he was able to operate on his own, and after the father's death his estate was divided among his heirs and his business dissolved.[37] Later developments of business organisation and family relations however, differed substantially. During the thirteenth century the Genoese traders adopted the family firm, the essence of which was a permanent partnership with unlimited and joint liability. In many cases, this organisation preserved the family wealth undivided under one ownership, and a trader's son, reaching the appropriate age, joined his family's firm.[38] The Maghribi traders, after being active in trade at least as long as the Genoese, did not establish a similar organisation. The rationale for this uneven development is clear, however, when realising that a Genoese and not a Maghribi merchant was motivated to credibly signal that he would operate through an agent for many periods. This signalling was achieved by establishing a family firm whose lifespan was 'infinite', and which was less likely to go bankrupt than a single merchant.

5. Institutions, institutional efficiency and distinct institutional trajectories

Examining the institutions that mitigated the FPOE in a particular historical episode would enhance our understanding of social outcomes only if distinct institutions have different implications. If institutions are always optimal, enabling exhaustion of all feasible gains from exchange given the available technology, their study is of secondary importance. The significance of institutional analysis lies in the assertion that different institutions

[37] Regarding the Maghribis, see Goitein (1967), pp. 180ff; Gil (1983b), vol. 1, pp. 215ff. Regarding the Genoese, see, for example, *Giovanni Scriba*, 236, 575, 1047 for a father's help and 946 for a will.

[38] See discussion in De Roover (1965), pp. 70, ff; Rosenberg and Birdzell (1986), pp. 123–4.

have distinct economic, social, and political ramifications and that past institutions direct the process of institutional change.

The above discussion of institutions during the Commercial Revolution supports the claim that this is indeed the case. These institutions were efficiency enhancing. Yet examination of the processes that moulded them and their nature suggests they were not merely a response to economic needs. These institutions reflected social, political, and cultural processes of which they were an integral part and their interrelationships with these processes imply that they were not optimal.[39]

For example, the timing of the emergence of a merchant guild in various localities, and the resulting trade expansion, was determined by social and political factors. The major Italian city states grew large because of the social, political, and economic events around the Mediterranean. Italian trade expanded because each city functioned as a merchant guild, and its size implied that its traders were not 'marginal'. Although the potential gains from trade in the Baltic Sea were substantial as well, that region's settlement process led to small towns that could not assure the safety of their traders abroad. Only after a long process of institutional evolution were these towns incorporated into an inter-city merchant guild, the German Hansa, that led Baltic trade to prosper.

Similarly, the institutions that governed agency relations – the Maghribis' coalition and the Genoese patron system – also reflect social, political, and cultural processes. These processes determined the nature of the institutions and the timing of their emergence and disappearance. Particularly, the origin and extent of the Maghribis' coalition seems to have been a by-product of the immigration of the Maghribis to North Africa and their cultural attributes. By coordinating expectations and providing a social network to transmit information, immigration made initiating a collective punishment possible. At the same time, cultural factors made collective punishment a focal point. The Maghribis were mustarbin, that is, non-Muslims, who adopted the values of the Muslim society. Among these values was the view that they were members of the same *umma*. This term, although translated as 'nation', is derived from the word *umm* meaning 'mother', reflecting the basic value of mutual responsibility among the members of that society (see for example, Cahen 1990). Further, *umma*'s members shared the fundamental duty not only to practice good, but also to ensure that others did not practice sin (Lewis 1991). In addition, the Maghribis were part of the Jewish community, within which the idea that 'all Israel is responsible for every member' is prominent. Hence, immigration initiated by political factors in conjunction with social and cultural factors led to the emergence of the Maghribi traders' coalition.

[39] For detailed elaboration on this argument, see Greif (1994a, 1996, 1997a, b), Greif *et al.* (1994).

Similarly, the emergence of the patron system in Genoa reflects its general history. Towards the end of the twelfth century, the number of Genoese active in trade rose dramatically. Instead of the few dozen traders who had previously been active in each trade centre abroad, hundreds of Genoese began trading. At the same time, Genoa experienced demographic expansion, and its population was growing rapidly through immigration despite a high mortality rate. It seems that Genoa's population increased from 30,000 to 100,000 during the thirteenth century (Bairoch *et al.* 1988). This demographic and social setting did not support the stable social networks required for the development of a coalition based on multilateral punishment. Genoa's cultural environment did not support collective punishment either. Christianity during that period placed the individual rather than his social group at the centre of its theology. It advanced the creation of 'a new society based not on the family but on the individual, whose salvation, like his original loss of innocence, was personal and private' (Hughes 1974, p. 61). Indeed, the contract through which the Genoese established their city shortly before 1099 was one between individuals, not between families or other social groups.[40]

Note that the argument here is not that the Maghribis and the Genoese faced situations that were identical in each and every detail apart from the above factors. The argument is only that the institutions each achieved would have been technologically possible in the other, and the above factors directed the process of equilibrium selection. In particular, given the emphasis on institutions provided by the state in economic history, it is important to stress that the institutions discussed above do not merely reflect the ability or inability of the state to structure exchange relationships. The aspects of these institutions provided by the state co-evolved with those aspects that did not; neither can be considered exogenous to the other.

The merchant guilds, for example, nicely illustrate the complexity of the relationships between institutions provided by the state and those that are not. Merchant guilds enabled people to believe in the effectiveness of constraints on the actions of rulers; at times, however, the success of their operation depended on intra-guild enforcement backed by the state. Furthermore, in the case of the German Hansa, the need for inter-city coordination led to the emergence of a new political unit. We cannot consider the Hansa as exogenous to the process through which institutions that governed the relationships between rulers and merchants emerged. Furthermore, cities affiliated with the Hansa were not motivated to retain their affiliation with it and follow its instructions because the state had a monopoly over coercive power. They were motivated by the resulting econ-

[40] Clans, however, dominated Genoa's politics. This does not conflict with the argument made above. The bilateral agency relationships described above often prevailed among individual agents and those who invested on behalf of a clan: see Greif (1998c).

omic stream of rent. (See Greif *et al.* 1994 for further discussion of the endogenous formation of the Hansa.)

Similarly, one cannot attribute the distinct institutions that governed agency relationships among the Maghribis and the Genoese to a different political environment. First and foremost, the Jews in the Muslim world had a well-developed legal system that was recognised by the Muslim authorities and its decisions were enforced, when needed, by the Muslim police. Furthermore, Jews in the Muslim world were allowed to use, and at times did use, the Muslim legal system. Hence, it is misleading to consider the Maghribis' coalition as reflecting a lack of legal options. On the other hand, the Genoese legal system did not predate their commercial expansion. It emerged in response to a need to establish agency relationships, among other reasons – a need that would not have existed if the institutions governing Genoese agency relationships had been similar to those of the Maghribis and based on collective punishment.

Furthermore, a coalition can prevail even if a legal system exists; the existence of a legal system does not explain why agency relationships were not governed by a coalition. Each of the institutions that prevailed among the Maghribis and the Genoese reflect distinct equilibria and not a different legal environment. Further support for this claim is gained from the observation that the Venetians developed yet another institution to govern agency relationships (De Lara 2000). Their institution relied heavily on contract enforcement provided by the state which also established a tight control over trade in Venice and abroad. Venice's exclusive trading rights in various localities abroad and restrictions on entry provided Venetian merchants with the stream of rent required to induce them to retain their affiliation with the city. Furthermore, the city's administrative control over trade provided it with the information required to evaluate agents' conduct and to punish cheaters. Finally, the gains to the Venetians from this system provided it with the political support it needed to perpetuate. Hence, the common feature of the Genoese and Venetian institutions is the absence of collective punishment.

The processes through which these institutions emerged and the details of their operation revealed by their explicit modelling suggest that each had distinct implications. We have already seen that each institution had different social implications, implied different access to agency services (and hence dynamics of wealth distribution), provided distinct motivation for inter-generational relationships and the establishment of family firms, and encouraged the use of distinct contracts. Furthermore, it seems that neither institution could have supported the set of optimal exchange relations. Among the Maghribis, the extent of agency relations was limited by the coalition's size which had been determined by an immigration process. Indeed, the historical evidence indicates that the multilateral reputation mechanism led the Maghribis to forgo efficient relations with non-

Maghribis in favour of more profitable but less efficient agency relations among themselves. It should be noted that the size limitation was a reflection of expectations, and thus this deficiency could have been remedied by an appropriate coordinating organisation, but it did not emerge.

Yet the coalition enabled a Maghribi to hire an agent even when the relations between them were not expected to be repeated. This was not the case under the patron system which could support only repeated agency relations. Furthermore, the patron system required a wealth differential between merchants and agents that restricted agency relations. Again, although this deficiency could have been remedied by an appropriate organisation such as the family firm, it did not emerge until a century later.

Although the above discussion suggests that the institutions which supported exchange during the Commercial Revolution were not optimal because they did not solely reflect the needs of the trade, were they tending to converge to an optimal one? Were these institutions inducing growth-enhancing organisational or technological innovations? The historical and theoretical analysis indicates that this was not the case. Rather, these institutions were path-dependent in the sense that their capacity to change was constrained by their own history.

The emergence of merchant guilds in the Latin world entailed the consolidation of political and legal entities that shaped later institutional development. For example, the emerging German Hansa was a new political organisational entity aimed at preserving the property rights of German merchants. Although its establishment enabled northern European trade to flourish, once organised the Hansa's concern was not efficiency but profitability. In its constant effort to preserve trade rights and supremacy, the Hansa crushed the advance of other traders' groups without consideration of their comparative efficiencies (Dollinger 1970, Lloyd 1991).

The channel through which past institutions influenced trajectories in institutions that governed agency relations are much more complex. In trading societies, such as those of the Maghribis and the Genoese, different institutions that governed agency relations consisted of distinct relations between individuals and society which, in turn, provided diverse incentives regarding the introduction of various organisations that supported collective actions and facilitated exchange. (For a formal presentation of this argument and the benefit from using an explicit game theoretic model, see Greif 1994a.)

Among the Maghribis agency relations were governed by an institution that was based on economic self-enforcing collective punishment and was supported by an ingroup social communication network. In such a 'collectivist society' the enforcement required to support collective actions and facilitate exchange could be achieved without 'formal' – legal or political – organisations specialising in communication and enforcement. Among the Genoese, agency relations were governed by an institution based on bilateral punishment which reduced the benefit of communication. This 'individualistic' society had a relatively low level of informal economic enforcement over its members. Hence, to support collective actions and to facilitate exchange there was a need to develop formal – legal and political – enforcement organisations. In other words, the expectations associated with the institutions that governed agency relationships reflected and became part of the 'view of the world' or the cultural beliefs of members of these societies. These beliefs, in turn, were extrapolated to situations that had not been encountered before, thereby influencing the trajectory of institutional change. They influenced the outcome following exogenous change in situations and provided incentives for particular trajectories of organisational change. Hence, they directed the evolution of institutional trajectory by influencing institutional change, organisational innovations, and social structures.

Indeed, the Genoese developed formal organisations to support collective actions and exchange while the Maghribis abandoned available ones. During the twelfth century the Genoese ceased entering contracts with a handshake and developed an extensive legal system for registration and enforcement of contracts. Furthermore, the customary contract law that governed the relations among Genoese traders was codified as permanent courts were established (Vitale 1955, Greif 1994a). In contrast, despite the existence of a well-developed Jewish communal court system, the Maghribis entered contracts informally, utilised an informal code of conduct to govern exchange, and attempted to resolve disputes informally (Goitein 1967; Greif 1989, 1993).

This distinct organisational development is also well reflected in the development of merchant guilds in these two societies. Among the Maghribis compliance with embargo decisions was assured through informal means. After the Muslim ruler of Sicily abused the rights of some Maghribi traders, the Maghribis responded by imposing, circa 1050, an embargo on Sicily. This embargo was organised informally, although the Maghribis could have used the Jewish court system or a Jewish communal formal organisation.[41] In contrast, among the Genoese the city of Genoa itself functioned as a formal enforcement organisation to ensure compliance with collective actions. After the city authorities declared that a certain area was a *devetum*, that is, prohibited for trade, any merchant found in that location was subject to legal prosecution (Lopez 1943, Greif 1994a).

The distinct incentives provided by the collectivist cultural beliefs associated with the coalition and the individualistic cultural beliefs associated with the patron system also manifested themselves in the emergence of other organisations. We have already seen the relationships between the individ-

[41] David Kaufmann Collection, Hungarian Academy of Science, Budapest, document # 22, a, ll. 29–31, b, ll. 3–5, Gil (1983a), pp. 97–106; Greif (1994a).

ualistic cultural beliefs of the Genoese and the motivation to establish a 'firm' through which the wealth of several merchants was aggregated. Individualist cultural beliefs – not collectivist – also provided the incentive to use a bill of lading even though the first historical evidence for its use in Europe was from late medieval Genoa. In sharp contrast, the Maghribis, although familiar with the bill of lading, did not utilise it. Hence, distinct institutions led to and reinforced distinct cultural features, which, in turn, directed these two groups along separate paths of organisational development. The importance of distinctive cultural beliefs to the evolution of a society's organisation is further exemplified below through the examination of their implications for other formal organisations and social structures.

Although the above examples do not lend themselves to quantifying the economic implications of distinct institutions governing exchange relationships, they do reveal the different implications of institutions. Consider the analysis of agency relationships among the Maghribis and the Genoese: each institution that governed agency relations had different efficiency implications. The collectivist system is more efficient in supporting intra-economy agency relations and requires less costly formal organisations (such as law courts) but it restricts efficient inter-economy agency relations. The individualist system does not restrict inter-economy agency relations but is less efficient in supporting intra-economy relations and requires costly formal organisations. Furthermore, each system entails different patterns of wealth distribution, each of which is likely to have different efficiency implications. This implies that the relative efficiency of individualist and collectivist systems depends on the magnitude of the relevant parameters. Although in the long run the Italians drove the Muslim traders out of the Mediterranean, the historical records do not provide any explicit test of the relative efficiency of the two systems.

It is intriguing to note, however, that the Maghribis' societal organisation resembles that of contemporary developing countries whereas the Genoese societal organisation resembles the developed West, suggesting that the individualistic system may have been more efficient in the long run. The analysis thus enables conjecturing about the possible enduring benefits of the individualistic system. To the extent that the division of labour is a necessary condition for long-run sustained economic growth, formal enforcement institutions that support anonymous exchange facilitate economic development. Individualist cultural beliefs foster the development of such institutions and hence permit a society to capture these efficiency gains. Further, an individualist society entails less social pressure to conform to social norms of behaviour and thus fosters initiative and innovation. Indeed, Genoa was well-known among the Italian city-states for its individualism and was a leader in commercial initiative and innovation.

6. Conclusions

The fundamental problem of exchange is inherent in any transaction and hence the ways it was mitigated in past economies was central to their operation. It is reasonable to conjecture, as the studies summarised above indicate, that the legal and private-order institutions that mitigated this problem in various historical episodes differed substantially even with respect to the same transaction. They differed substantially because even institutions that reflected economic needs were an integral part of broader social, political, and cultural processes. Hence, they were likely to have had different economic implications and exhibit different long-run dynamics. Examining the nature and evolution of institutions that mitigated the FPOE in various societies, therefore, is likely to enhance our understanding of the determinants of societies' distinct economic performance over time.

Only recently have scholars begun to study institutions that mitigated the fundamental problem of exchange in various historical episodes. The emergence of this research agenda reflects the availability of new analytic frameworks and renewed awareness of the importance of institutions governing exchange. Scholars working on this issue have already examined diverse institutions such as those that enable the contractual establishment of a political unit (Greif 1994b, 1998c); enhance the ability of rulers to commit (North and Weingast 1989, Conklin 1998); govern the sale of legal and financial services and information (Calomiris 1990, Rosenthal 1992, Guinnane 1994, Hoffman *et al.* 1998); and enable long-distance trade and investment in the absence of a legal system as we know it today (Lamoreaux 1986; Greif 1989, 1993, 1994a, 2000 forthcoming; Clay 1997, De Lara 2000).[42]

These studies have contributed to our understanding of the origins, natures, and implications of institutions that mitigated the fundamental problem of exchange in various historical economies. By revealing the particularities of past institutions, each study also demonstrates, once again, the need to study past economies in their historical context. Past societies faced economic problems similar to those of contemporary ones, but have confronted them in different ways. More importantly, each of these studies advances us another step toward painting the larger picture of the historical evolution of institutions that governed exchange in various societies. Once the cumulative effect of such studies enables us to see the broader picture of this historical evolution in different societies we will be much closer to understanding the process through which some societies grew rich while others did not. There is much that we can gain from better understanding of the institutional foundations of exchange in past and present economies.

[42] Some other studies include Gustafsson (1987), Alston and Ferrie (1993), Klein (1997), Banner (1998), Kroszner (1999), and Yung (2000).

Acknowledgements

This article was originally delivered as a Keynote speech at the European Historical Economics Society, Lisbon, 29 October, 1999. I am grateful to the participants in the conference, the editors, and an anonymous referee for valuable comments.

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