Micro Theory and Recent Developments in the Study of Economic Institutions Through Economic History

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Abstract

This paper discusses the three approaches within economic history that utilizes micro-economic theory to examine institutions, their nature, change, and efficiency: the Neo-classical Economics approach, the New Institutional Economic History approach, and Historical Institutional Analysis approach. The focus is on methodology and general results rather than on any specific conclusions regarding institutions in particular historical episodes. Most of the survey is devoted to elaborate on the recent development of Historical Institutional Analysis.

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<u>Introduction</u>

Adam Smith (1937 [1776]) argued that the "propensity to truck, barter, and exchange" is in

human nature (p. 13) and proceeded to examine how institutions impact the efficiency implications of this tendency. Arguably, institutions impact efficiency since they influence the allocation of resources to and by economic agents and the set of exchange relations that these agents are willing to assume. The diversity of economic environments and institutions utilized throughout history provides a unique source for examining the nature and implications of institutions.[1] Indeed, a distinctive feature of Economic History has always been its concentration on the examination of institutions, their origin, nature, and implications.[2]

This paper provides a brief survey of the three approaches within economic history – the Neo-classical (section I), the New Institutional Economic History (section II), and the Historical Institutional Analysis (section III) – that utilize micro-economic theory for the study of institutions and their efficiency implications.[3] Each of these complementary approaches focuses on different sets of institutions, utilizes different theoretical frameworks to analyze them, and advances different methodologies to integrate theoretical and historical analyses.

Due to space limitation this paper concentrates at highlighting these approaches' methodology, inter-relations with micro-economic theory, and general insights with respect the study of economic institutions. Since Historical Institutional Analysis is the most recent development in the study of economic institutions through economic history, most of the survey is devoted to this approach. Furthermore, it briefly described some Historical Institutional Analysis studies. Finally, due to space and knowledge limitations this survey is restricted mainly to works focusing on US and European history.[4]

I. The Neo-classical Approach

In the 1950s, following the Cliometric Revolution in economic history, economic historians

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[1] This was recognized, for example, by North (1981); Williamson (1982); Olson (1982).

[2] For a discussion of the methodological differences between economic history and economics, see, Backhouse (1985), pp. 216-21. For institutional studies during the 19th century in the German and English Historical Schools, see, for example, Weber (e.g. 1987 [1927]); Cunningham, (e.g., 1882).

[3] Extensive work in economic history utilizes macro-economic theory to examine organizations and institutions such as central banks and monetary regimes. See, for example, Eichengreen (1994).

[4] It also does not discuss papers that do not integrate theory and history.

adopted the neo-classical framework and began utilizing econometrics to test hypotheses.[5] The historical study of institutions turned to examine the extent to which a particular institution – the market – governed exchange in the past. Data regarding prices, quantities, and exogenous parameters such as age, gender, and the cyclical nature of various industries were used to evaluate the hypothesis that the relations between these variables are the same as those that resulted if exchange is conducted within a market.

While data availability limit applying this technique, the analysis lends support for the assertion that markets functioned in many historical episodes. For example, labor, capital, and product markets existed in the US from as early as the colonial period; and in the 1890s Michigan's labor market for unskilled workers was so refined that it exhibits compensating wage differential between cyclical and non-cyclical sectors.[6] In Europe, from as early as the fifteenth century the degree of specialization among farmers in the Paris basin indicates the operation of product markets; prices of various securities indicate that international financial markets functioned smoothly among various mercantile states during the eighteenth century.[7]

Markets were found to emerge and integrate following technological changes, particularly improvements in transportation and communication technologies, and following political changes that fostered peace (e.g., Hoffman, 1996). The emergence of private capital market benefitted from the need to finance large projects such as a railroad systems and, due to economies of scope, from the existence of markets in government securities (e.g., Neal, 1990).

To examine the historical process of market integration prices are used to econometrically evaluate their co-variations over time and place. The availability of price data, however, restricts this technique to examining mainly labor and financial markets.[8] Such analysis yields, for example, that there were regional but no national labor market in the late nineteenth century US (Rosenbloom, 1994) while London and Amsterdam stock exchanges were well integrated during the eighteenth century (Neal, 1990). To evaluate capital market integration, Buchinsky and Polak (1993) compared interest rates in

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[5] On the Cliometric Revolution, see Williamson (1994). Hartwell (1973) survey the methodological developments in economic history. For the many contributions generated by of the neo-classical line of research in economic history, see McCloskey (1976).

[6] Galenson (1981, 1989); Price (1980); Rothenberg (1992); Hatton and Williamson (1991b).

[7] Hoffman (1991, 1996); Neal (1990). For a collection of works on labor markets, see Aerts and Eichengreen (1990).

[8] See further, Hatton and Williamson (1991a).

London's capital market with the annual registered property transactions in Middlesex and West Yorkshire. Property transactions were not strongly correlated with London's interest rate in the middle of the eighteenth century but were strongly correlated by the end of the century.

Coase's (1937) seminal work influenced the neo-classical approach's view of non-market institutions. Non-market institutions are contractual relations and patterns of property ownership which are an efficient responses to market imperfections or very high prices. Hence, non-market institutions are inversely related to market perfection. Several studies in the neo-classical approach claim to lend support to this conjecture.

For example, McCloskey (e.g., 1989), claimed that a particular ownership structure that prevailed in pre-modern European villages reflects the absence or high cost of markets for insurance. Each farmer's agricultural land was not concentrated in one field but in many scattered strips within the village boundaries. This practice was (technically) inefficient but arguably reduced the probability of total harvest failure for each farmer. Insurance markets did not exist, and alternative means to reduce the probability of starvation, such as grain storage, were more expensive than scattering. The system disappeared in the nineteenth century as economic growth and integration of markets made more efficient means of insurance possible.[9]

Similarly, Galenson (1981) considers the indentured servitude contracts used in the Britain's American colonies during the seventeenth and eighteenth centuries as a response to market imperfection. In the absence of appropriate financial markets, potential immigrants were unable to finance their voyages. Hence, instead of using the financial markets, they used the labor market to finance their finance voyages using servitude contracts. Servitude declined when financial markets improved and enabled more efficient financing (Grubb, 1994).

Neo-classical economics suggests that markets and the process of market integration foster efficiency and growth. Yet, it has been proved difficult to substantiate this claim based on historical data. For example, Galenson (1989) concluded that the American colonies' economy "benefitted from highly competitive transatlantic markets for ... labor" (p. 96) but this assertion is based on theoretical arguments rather than historical information. Similarly, North (1966 [1961]) argued that a main factor behind US growth from 1760 to 1890 was the spread of a market economy that drew resources out of

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[9] Using the Mechanism Design approach, Townsend (1993) has demonstrated that scattering can be pareto improving. Fenoaltea (1975) and Allen (1992), however, challenged the theoretical and empirical foundation of McCloskey's analysis.

pioneer self-sufficiency. Yet, he was unable to conduct any test or provide direct evidence supporting the claim regarding the relations between growth and market expansion *per se*. Only recently Sokoloff (1988) provided qualitative support for the assertion that access to larger markets in the US fostered innovations. Using a sample of US patent records from 1790 to 1846 he demonstrated that inventions were positively related to the size of markets. On the other hand, Wright (1987) has claimed that product market integration in postbellum US hindered the economic development of the South. Industries requiring large initial investment in learning and skills could not emerge in the South.

The neo-classical approach to the study of institutions through economic history established that contrary to the claims of traditional historians, it is not true that the governance of exchange by markets is a very recent phenomenon. Furthermore, by revealing the economic rationale beyond various contractual relations and patterns of ownerships it lends support to the Coasian view of non-market institutions as substitute for markets. Yet, as North (1977) pointed out, it has not been able to yield much insight regarding non-market institutions and does not indicate why some societies, but not others developed market economies.

II. New Institutional Economic History

The New Institutional Economic History (NIEH) attempts to explain "why institutions that produce poor economic (and political) performance can [emerge and] persist" (North, 1993, p. 12).[10] Institutions are identified (North, 1981, p. 18) with "constraints on behavior in the form of rules and regulations" and enforcement procedures. Culture is important to the extent that "moral and ethical behavioral norms aimed to reduce enforcement costs."[11] NIEH works examined variety of institutions but the micro-economic theories it utilize – transaction cost economics, the theory of property rights, and public choice theory – constrained most of its historical analyses to institutions defined and enforced by the state.[12] This historical analysis is guided by three deductive assertions.[13] First, institutions defined and enforced by the state – property rights, rules, and regulations – determine economic performance

[10] The NIEH is a part of a broader movements of institutional analysis in economics and political science known as the New-Institutional Economics (NIE). For surveys, see Eggertsson (1990) (economics); Weingast (1995) (political science).

[11] The only empirical work that examines these cultural norms is Levi (1988).

[12] Some NIEH works examined contractual relations and voluntary creation of rules and regulations. For recent applications see, for example, Alston and Higgs (1982); Fishback (1992).

[13] Davis and North (1971); North and Thomas (1973); North (1981).

through their impact on transaction costs. (In this section, the term institutions will refer to property rights, laws, and regulations specified and enforced by the state.) Second, the economic implications of a given institution change over time due to technological change, population growth, market integration, and other factors. Hence, economic outcomes depend on efficient institutional change. Furthermore, specialization increases transaction cost (holding institutions constant) implying that institutional change is even more important in advanced economies.[14] Third, institutions are usually inefficient since they are determined through a political process and are influenced by the transaction costs of bargaining, measurement, and enforcement. Hence, institutional selection and path dependence reflect interest groups' politics.

Many historical studies indeed substantiated that property rights, laws, and regulations specified and enforced by the state impact efficiency. For example, Haber (1991) examined the relationship between security of property rights, government regulations, and industrial concentration in Brazil, Mexico, and the United State (1830-1930). Poorly defined property rights and cumbersome government regulations in the former two countries resulted in higher concentration than in the US. Similarly, Rosenthal (1992) demonstrated that various efficient drainage and irrigation projects in Old Regime France were not undertaken. Insecure property rights over the drained area made efficient drainage unprofitable in France while in England, where property rights were secured, efficient drainage was assumed.

The assertion that institutions require constant adjustment to promote efficiency was examined by Davis and North (1971). They found that in the late 19th and early 20th US, market integration and technological changes initiated institutional change arguably aimed at increasing efficiency. The political process through which institutions are determined was explored, for example, by Libecap (1989). He examined property rights formation in various minerals, range, timberland, fisheries, and crude oil in the US. Distributional issues, asymmetric information, bargaining failure, and the political interests of politicians and bureaucrats crucially impacted the nature, and hence arguably efficiency, of property rights' specification. Similarly, Kantor (1991) examined the closing of Georgia's open range (1872-1890). He estimated the efficiency gains from closing the range in various counties and noted that in the political process of enclosure "the potential for efficiency gains [in particular counties] did not guarantee" (p. 884) the closure of their ranges. Alston et. al. (1994) examined the formation of property rights in land in Brazil and substantiated econometrically that the political importance of a region, rather

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[14] Wallis and North (1986) provide a time series of transaction costs in the US economy. Cf. Lance (1986).

than its economic needs, determined the extent to which the government secured property rights that fostered land improvements.[15]

III. Historical Institutional Analysis

The contributions of NIEH for the study of institutions in economic history are beyond doubt. It drew attention to the importance of property rights, rules, and regulations defined and enforced by the state, the political process of their formation, and transaction costs. Nonetheless, its theoretical framework restricted the set of institutions it could examine mainly to those defined and enforced by the state restricts the set of institutions it can examine. Consider, for example, North and Thomas's (1973) analysis of the spectacular economic expansion of the late medieval period. Early on feudal lords "fought amongst themselves; but gradually, ... the strife declined" (p. 11). Peace enabled population growth and the realization of gains from "commerce between different parts of Europe" that "had always been potentially of mutual benefit" (p. 11). Hence, their argument is based on a deductive claim that security of property rights provided by the state is a necessary and sufficient condition for economic expansion. Further, this expansion was sufficient to lead to the various institutional innovations that occurred that period (such as insurance contracts and the bill of laden). The "revival of trade led ... to a host of institutional arrangements designed to reduce market imperfections" (North and Thomas, 1973, p. 12).

This analysis fails to address a host of questions regarding the relations between institutions and economic outcomes. For example, what were the institutions that made peace self-enforcing? Was trade expansion only a function of peace and factor endowments, or did institutions influenced the time, place, and extent of trade expansion? Why did the European institutional innovations differ from those developed in other (technologically similar) economies in response to trade increase? In addressing such questions the NIEH's methodology was found to be insufficient. As the Historical Institutional Analysis (HIA) papers discussed below indicate, addressing such questions and going beyond the empirical analysis of the state as the fountain of institutions requires a different methodology.

First and foremost, it requires an operational concept of institutions, namely, the non-technologically determined constraints on behavior which are self-enforcing.[16] Game theory provides a

[15] See also Alston and Ferrie (1993); Fishback and Kantor (1995).

[16] The definition of institutions as non-technologically determined constraints on economic behavior (Greif, 1994a) is inspired by North (1991): institutions are "the rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction" (p. 3). Definitions similar to his are utilized in the

natural theoretical framework to examine self-enforcing institutions as it enables viewing an institution as an equilibrium. In a game theoretical framework, two main interrelated institutional components are expectations and organizations. Clearly, to the extent that expectations impact behavior, a player's expectations with respect to other players' behavior is a part of the non-technologically determined constraints that this player faces.[17]

Organizations are non-technologically determined constraints (other than expectations) that impact behavior by introducing a new player (the organization itself), changing the information available to players, or changing payoffs associated with certain actions.[18] The court, the regulator, the credit cooperative, the credit bureau, the firm, and the merchant gild are examples of such organizations.

In many cases, it is fruitful for empirical analysis to consider an exogenous introduction of an organization to the original game under consideration. For example, suppose that the essence of the issue under consideration relates to contract enforcement. The players may be unable to establish a court to govern their relations, yet, it may be established by the state and – depending on the expected behavior of the court – drastically alter equilibrium behavior in the modified game. In many cases, however, such analysis is insufficient to fully comprehend an economy's institutional structure. In such cases, one has also to examine the broader game in which organizations – such as the court – are the equilibrium outcome.[19] For an organization to be an equilibrium outcome, the actions required to establish it should be feasible and the players with the ability to do so should have the appropriate incentives. In other words, for a particular organization to be selected from the set of possible organizations and to impact behavior, expectations that make this organization (and, if appropriate, its actions) an equilibrium outcome should prevail. The organization should be self-enforcing.

Yet, the use of game theoretical framework for institutional analysis poses a challenge. In many strategic situations there are multiple – efficient and inefficient – equilibria implying that outcomes are not uniquely pre-determined. Furthermore, possible outcomes in strategic models are usually very

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Rational Choice Approach to the study of political institution (see Weingast, 1995). These definitions, however, do not capture that some rules of the game are technologically determined while expectations also constrain behavior.

[17] Most HIA studies limit the set of admissible expectations to those associated with (some refinement of) Nash equilibrium. Yet, other expectations such as those associated with self-confirming equilibrium (Fudenberg and Levine, 1991) or rationalizable equilibrium (Bernheim, 1984) can in principal be used.

[18] Clearly, such constraints usually have some technological component to them. The point is that they are not determined by the technology of production or exchange central to the analysis.

[19] Reiter and Hughes (1981) is the forerunner of such analysis.

sensitive to the model's specification. Thus, in and by itself, the broad view of institutions as self-enforcing equilibria is insufficient for advancing the empirical analysis of institutions in history beyond the domain of NIEH. To advance the analysis, HIA adopts an inductive historical analysis and context-specific strategic modeling. A context-specific model able to capture the details of the historical situation under consideration is required for a constructive game theoretical analysis. To construct such a model there is a need for a micro level historical study (usually based on primary sources) able to provide the foundations of the model's specification and to facilitate confronting the details of the analysis with the minutes of the historical evidence (at times, even at the level of the individual decision maker).

Although HIA relies on equilibrium analysis to identify historical institutions, it goes beyond an empirical analysis of equilibria in games. It aims at empirically examining the processes of institutional selection and institutional path-dependence. It attempts to empirically comprehend the factors, if any, that make institutional development an historical, time consuming ergodic process. As discussed in subsection 2 below, this empirical analysis requires explicit departure from game theoretical analysis. This departure notwithstanding, it is the development of game theory that indicates the need for, and the promise of historical inductive analysis of self-enforcing institutions, institutional selection, and institutional path dependence. The multiplicity and indeterminacy of equilibria in strategic situations indicate that the details of the historical context are potentially important in the selection of institutions, the implications of a particular institution, and institutional path-dependence.

The usefulness of the HIE theoretical framework is demonstrated below through a discussion of various empirical HIA studies. The game theoretical conceptualization of institutions as equilibria, the use of inductive historical micro level analysis, and the use of context-specific strategic models enables an empirical analysis that goes beyond the boundaries of NIEH. It enables examining self-enforcing institutions (including those that make the state itself self-enforceable) and it enables to examine institutional selection and path-dependence. Particularly, HIA theoretical framework makes an empirical examination of the relations between cultural and social factors and institutional selection possible. Furthermore, it enables to empirically indicate sources of institutional path dependence other than interest groups' politics.

The next two subsections further elaborate on HIA's methodology and present some of its studies and findings. Subsection 1 elaborates on the methodology HIA employs to identify institutions and describes some empirical studies. Subsection 2 discusses findings regarding the relations between the historical – economic, social, cultural, and political – context and institutions, institutional selection, and

institutional path-dependence.

1. Identifying Institutions: Methodology, and Some Findings

An attempt to identity institutions that were relevant in a particular historical episode can not possibly begin by examining a game devoid of all institutions. Throughout history human interactions were embedded in an institutional context (Field, 1981). Hence, a HIA study begins with a micro-level historical examination aimed at identifying a transaction (Williamson, 1995) or organizational problem (Arrow 1974) relevant in the particular historical episode under consideration. The aim is to identify a transaction that the exact nature of the institution that governs it impact economic outcomes in that particular historical episode. For example, in economies based on long distance trade, the institution that governs agency relations among merchants located in distinct trade centers can have significant efficiency and distributional consequences. This may not be an issue in an urban economy in which it is the institution that mitigates asymmetric information between borrowers and lenders that can have important economic implications.

HIA is an inductive approach and does not pre-supposes that an institution with specific attributes (e.g., maximizing efficiency) prevailed. Hence, direct historical evidence such as explicit statements and empirical regularities is used to identify exogenous and endogenous institutional features and to form a hypothesis concerning the relevance or irrelevance of a particular institution. For example, historical evidence regarding agency relations in twelfth century Genoa indicates that less than 16 percent of agency relations were among family members suggesting that agency relations were not governed by family loyalty (Greif, 1994a). Similarly, the historical evidence suggests that the notaries of Paris during the 18th century had a role in mitigating asymmetric information problems between borrowers and lenders (Hoffman et. al. 1994).

It is usually impossible or impractical to identify the set of all possible institutions that could have been relevant. Hence, while whenever possible HIA attempts to increase confidence in a hypothesis by rejecting alternative ones, it concentrates on substantiating the hypothesis that a particular institution prevailed rather than proving that all other institutions did not prevail. To further refine and enable substantiating the hypothesis that a particular institution was relevant, a context specific model is being specified through an interactive process of theoretical and historical examination. The model is based on assumptions the confidence in which can be gained independently from their predictive power. This serves two purposes. The first is ensuring that the analysis does not impose the researcher's perception of a situation on the historical actors. For example, the king of England, Edward the First's note in 1283

that insufficient protection to alien merchants' property rights deters them from coming to trade. This enhances the confidence in the relevance of a model of a ruler's problem of committing to alien traders' property rights (Greif et al. 1994). The second purpose is to sufficiently constrain the set of possible models. In some cases, (e.g., Banerjee, et al., 1994) using modeling restrictions identified through the historical analysis was crucial in formulating a useful model.

An equilibrium analysis is usually utilized to refine and facilitate an empirical research that enhances confidence in a hypothesis. Although most HIA's studies have not been able to formulate econometrically testable models, modeling examines the logic, consistency, and robustness of the argument. It indicates the exact role of an organization (e.g, Greif et al. 1994), identifies the conditions that have to be fulfilled for the argument to hold (e.g. Baliga and Polak, 1995), and generates – under the assumption that a particular strategies prevailed – (comparative statics or other) predictions regarding observables that were not utilized in formulating the model.[20] The attempt is not simply to generate a prediction with respect to one observable but to generate predictions with respect to several observable.

HIA operationalizes institutional analysis by examining – historically and theoretically – the constraints that reflect technology, organizations, and equilibrium strategies (Greif, 1994a). The rest of this section illustrates such examination by presenting two lines of work. The first relates to institutions that enabled Smithian growth (growth due to trade) by fostering exchange in the absence of a legal system. The second relates to the institutional foundations of the state and how they impact economic efficiency by influencing the use of coercive power. Within each sub-section, papers are presented by historical periods. (A reader interested only in methodology and broad results can proceed directly to section 2).

i. Institutions and Smithian growth: Institutions that Governed Exchange in the Absence of a Centralized Legal System

The need to depart from the NIEH's view of the state as the sole fountain of institutions was motivated above by the inability of the NIEH to account for exchange in the absence of the state's legal contract enforcement. What are then, the institutional foundations of such exchange? Several HIA studies examined institutions that enabled exchange – and hence arguably enabled Smithian growth – by ensuring the self-enforceability of contractual relations.

During the Late Medieval Commercial Revolution in which long distance trade reemerged in

[20] E.g., Greif (1993, 1994a, 1996); Banerjee et al. (1994).

Europe (11th to 14th centuries) ***overseas*** *agents* enabled merchants to reduce the cost of long-distance trade by saving the time and risk of travelling, diversifying sales, and so forth. An overseas agent, however, had control over a merchant's capital abroad and hence could act opportunistically and expropriate it. Thus, unless agents could *ex ante* commit to *ex post* honest behavior, namely, to *ex post* respect the merchants' property rights over their goods, merchants would not have had hire them.

Greif (1989, 1993) examined the institution that governed agency relations among the Maghribi traders who operated in the Muslim Mediterranean during the eleventh century. Due to information asymmetry in agency relations and the cost and impediments of overseas litigation, the state could not enable agents to commit to respect merchants' property rights. The situation was analyzed through a variant of a efficiency wage model. It assumes, in accordance to the historical evidence that matching of merchants and unemployed agents is not anonymous. A merchant could restrict matching from among the unemployed agents who had taken a particular sequence of actions. Since a merchant had sometimes to cease operating through an agent who had been honest, this non-anonymous matching process implies that agency relations can be governed by a self-enforcing collective punishment.

Specifically, there is a (sub-game perfect) equilibrium the strategy of which calls for all merchants to refrain from hiring an agent who cheated any of them. (Although the strategy does not call for punishing a merchant who failed to punish.) This off-the-path-of-play collective punishment is profitable to the merchants (and potentially also to the agents) and it is efficiency enhancing since it enables establishing agency relations when such relations are not possible under a bilateral reputation mechanism. Furthermore, the Maghribis could have mitigated the asymmetric information inherent in agency relations by sharing information about agents' performance while reciprocity with respect to information transmission can make this provision self-enforcing.

Hence, agency relations among the Maghribis could have been governed by an economic institution that can be referred to as a *coalition* – a non-anonymous institution based on a multilateral reputation mechanism and an informal information flows. To substantiate that a coalition indeed governed agency relationships among the Maghribis, Greif (1989, 1993) presented direct and indirect evidence. Direct evidence is explicit documentary statements on various aspect of the coalition, such as the operation of the implicit employment contract, the economic nature of the punishment inflicted on cheaters, the linkage between past conduct and future economic reward, the interest that all coalition members took in the relationship between a specific agent and merchant, and so forth. Indirect evidence is the confirmation of predictions generated under the assumption that a coalition governed agency relations. Such predictions are with respect to, for example, the type of business contracts, 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.

Non-anonymous institutions similar to the Maghribis' coalition seem to have governed exchange relations in other historical episodes as well but seems to have been responsive to local conditions. Clay (1994) examined a coalition-like institution among Americans traders operating in Mexican California. Despite the lack of a formal legal system, these traders provided agency services to each other and sold goods in the local Mexican communities for credit. Since contract enforcement among the Mexican population was based on informal social sanctions the traders could not rely on the legal system to collect debt. To ensure contract enforceability in such credit transactions, a trader had to become part of the local informal contract enforcement mechanism. American retailers settled within the Mexican communities, married locally, raised his children as Catholics, and spoke Spanish at home. This time consuming sunk investment provided access to the local contract enforcement mechanism and the small size of the mexican communities implied that only one retailer operated in a particular locality.

Hence, a strategy calling for a permanent and complete boycott of a trader who cheated in agency relations would have barred all of them from operating in the market in which the cheater has the ability to enforce contract. Indeed, there is a punishment strategy that Pareto dominates a complete boycott strategy. It entails a partial boycott for a finite number of periods following the first cheating. The boycott is partial in the sense that it does not preclude transactions requiring the use of the cheater's local enforcement ability. A complete boycott follows only a second act of cheating during a boycott. Direct and indirect evidence indicates that such strategy was utilized by the traders. Hence, – as further elaborated in the next section – an environment distinct from that of the Maghribis led to distinct strategy and institution. In particular, institutions were nested in the sense that the nature of the contract enforcement mechanism among retailers and their customers affected the nature of the institution that governed the relationship among retailers.

Coalitions can provide contract enforcement over time and space among individuals who exchanged frequently in the absence of an effective legal system. But how was contract enforcement achieved among individuals who did not exchange frequently when a state could not provide it? This enforcement problem is particularly acute in exchange relations requiring enforcement through time and space, such as the provision of credit and contracts for future delivery prevailed among individuals from different communities. Was such exchange restricted during the Late Medieval Commercial Revolution, for example, to those who traded frequently with each other? If not, how was it made possible despite the lack of effective inter-community legal system? How could a merchant from one community commit

to repay a debt to a merchant from another community at a later date?

Inter-community exchange during the twelfth and the thirteenth centuries was extensively conducted in the Champagne Fairs where merchants from different localities entered into contracts that required enforcement through time. Milgrom, North and Weingast (1990) suggest that in the large merchants' community that frequented the fairs, a reputation mechanism could not surmount the related commitment problem since large communities lacked the social networks required to make past actions known to all. A *Law Merchant* system, however, in which a particular organization – a "court" without a coercive power – supplements a multilateral reputation mechanism can ensure contract enforceability in this case.

Suppose that each pair of traders is matched only once and each trader knows only his own experience. Since the fairs' court lacked the ability to enforce judgment once a trader left the fairs, assume that the court is capable only of verifying past actions and keeping records of traders who cheated in the past. Acquiring information and appealing to the court is costly for each merchant. Despite these costs, there exist an (symmetric sequential) equilibrium in which cheating does not occur and merchants are induced to provide the court with the information required to support cooperation. It is the court's ability to activate the multilateral reputation mechanism by controlling information that provide the appropriate incentives. Evidence that such a system indeed functioned in the Champagne fairs, however, is sparse and the paper simply points to the Fairs' authorities' control of entry to the fair.

The historical records from as early as the twelfth century, however, indicate the operation of another institution in Western and south Europe that enabled inter-community exchange. Traders applied a principle of community responsibility that linked the conduct of a trader and the obligations of each and every member of his community. Anyone who had the same "community label" as a merchant who cheated was held responsible for the damage. If a debtor, for example, failed to show at the particular fair where he was to meet his obligations and his community refused to pay or force him to pay, the lender could have requested any local court to confiscate the goods of any member of the debtor's community present at the fair. The traders whose goods were confiscated were to recover their losses from the original debtor. Traders used intra-community enforcement mechanisms to support inter-community exchange. At the same time, this system fostered asymmetry among otherwise identical economic agents. To an extent, it defined communities and fostered their internal organization. This observation is consistent with North (1990) claim that "groups of individuals bound by some common purpose to achieve objectives... come into existence and ... evolve [in response to] the institutional framework" (p. 5).

Greif (1994c) used various historical records to document the system and analyze it using a repeated, imperfect monitoring game in which merchants as well as a particular organization, a community (or fair) court are the players. The analysis highlights the rationale behind various empirical regularities and the inter-relations between various organizations and this system. For example, the periodic costly "retaliation phase" in which trade between two communities ceased was not necessarily a reflection of uncivilized rage as historians have claimed. Rather, it reflects, most likely, asymmetric information between local courts regarding a trader's ability or inability to meet his obligations toward another community's member. This implies that for cooperation to prevail, there has to be occasional on-the-equilibrium-path breakdown of inter-community cooperation.

The model also indicates the role of the courts in providing impartial information that enhanced the ability to objectively verify contract fulfillment. This information, and hence these organizations was crucial to mitigate the divergence of incentives between communities and their members that the community responsibility system entailed. In the absence of this information a community members could gain from advancing false accusation at the expense of his community. The model also indicates the rationale behind various regulations aimed at reducing information asymmetry regarding contract fulfillment and increasing the personal cost to a lender who was not paid.

Regulations that increased the personal cost to a lender who was not paid were required since the community responsibility system causes an adverse selection problem. A lender's probability of being paid is not only a function of the trade venture's probability of success but also of the ability to force the borrower's community to pay. Hence, the lender does not have enough incentive to verify the borrower's creditworthiness. Recognition of this adverse selection problem is well reflected in the repercussions of an agreement singed among cities in Tuscany in 1281 in which they contracted not to hold anyone responsible for debt he did not assume. The Florentine authorities warned merchants to pay close attention to personal creditworthiness in inter-community dealings since now "to whom it is given, from him it will be asked."[21]

While the work of Banerjee, Besley, and Guinnane (1994) on nineteen century German credit agriculture cooperatives is not directly related to Smithian growth, it also relates to self-enforcing institutions that promote exchange. Their analysis of these cooperative attempted to differentiate between two possible views of these organizations. The first is that they constrained borrowers by their members' ability to sanction each other through their repeated economic and social interactions. The

[21] Arias (1901), pp. 166-7.

second is that cooperatives constrained borrowers since peer monitoring induced investment only in profitable projects. They analyzed a model of a credit cooperative's optimal design in terms of the members' liability to default by others, the extent to which one member has to lend to other members, and the interest paid for such lending under the null that the latter explanation is valid. Confronting various comparative statics predictions regarding the optimal design with the historical records indicates that indeed the design of German cooperatives changed as predicted by the theory thereby lending support to the null (while, as they recognize does not refute the alternative explanation).[22]

ii. **Institutional Foundations of the State**

The need to depart from the NIEH view of the state as the fountain of institutions was also motivated above by its inability to account for the institutional foundations of the state itself. For example, during the late medieval period various feudal lords with military ability existed within each single political unit. To what extent did the need to insure the self-enforceability of the political relations among these lords constrained their ability to advance their economy? Did (self-enforcing) political institutions evolve to relax this constraint?

Greif (1994b, 1995a) addressed these questions with respect to late medieval Genoa. Genoa was established as a republic around 1096 and emerged from obscurity to build a commercial empire that stretched from the Black sea and beyond to Northern Europe. The analysis of its political system indicates that the need to ensure the self-enforceability of the contractual relations among Genoa's noble clans not to military challenge each other constrained Genoa's economic growth for about a century. It was only around 1194 that a severe military threat to Genoa as a whole and accumulated knowledge that motivated and enabled the clans to implement a self-enforcing political organization that relaxed that constraint and fostered political cooperation and economic growth.

To foster the economy of Genoa, its (two main) noble clans had to military and politically cooperate in acquiring commercial rights in other political units. Yet, for such cooperation to be forthcoming each clan had to *ex ante* commit not to use its military strength to *ex post* attempt to gain control over Genoa. Greif (1994b, 1995a) analyzed this situation using a repetitive complete information game. Inter-clan cooperation could not have been supported by the threat of terminating future cooperation since commercial rights yielded rent every period after their acquisition. Hence, additional

[22] For other recent works on financial systems, see Calomiris (1992); Lamoreaux (1994). For other works regarding institutions and labor relations see Treble (1990); Moselle (1995); Huberman (1996).

cooperation can require that each clan would invest resources in building fortification and establishing a patronage system to deter the other clan from military challenging it. If investment in military strength is positive at the (economically) efficient level of cooperations, the political cost of deterrence place a wedge between the efficient and the equilibrium level of cooperation.

This implies that Genoa clans' ability to cooperate could have been limited by the extent to which their relations were self-enforcing. If this constraint was binding the model yields various predictions such as the time path of cooperation, investment in military strength, and responses to various changes in exogenous factors such as external threat to both clans. Indeed, these predictions are confirmed by the historical records. Furthermore, the model also indicates that facing a severe external threat both clans may find it optimal to implement a particular political organization. In essence, this organization can foster inter-clan cooperation by creating a military balance among them. At the same time this organization can be made self-enforcing by providing it with the right incentives not to cooperate with any clan against the other.

Indeed, in 1194 the Genoese clans, facing a severe external threat to Genoa and taking advantage of experiments in political organizations in other Italian city-states, introduced such an organization and altered their political system. They introduced a *podestà* (that is, a "power") to create a military balance among them and to foster their cooperation. The *podestà* was a non-Genoese hired for a year to be Genoa's military leader, judge, and administrator. In these roles he was supported by non-Genoese soldiers he brought with him. The *podesteria* regulations reflect an explicit attempt to ensure that the *podestà*'s threat to militarily confront any clan that attacked another will indeed by credible and that no clan can collude with him against another. In other words, the introduction of a particular organization, the *podestà* altered the rules of the political and economic game in Genoa in a self-enforcing manner that fostered cooperation. It was under the *podesteria* which formally lasted about 150 years that Genoa reached its political and commercial apex. Yet, the system had its deficiencies. It was based on enhancing inter-clans mutual deterrence thus making clans a permanent feature in Genoa's political life. Venice – that eventually defeated Genoa militarily – avoided such fate but the analysis of its political institutions is not sufficiently advanced to clearly indicates how.[23]

Most works on the relations between the institutional foundations of the state and economic efficiency concentrated on the period in which European states were already formed and arguably had substantial coercive power. When a state has such a power it can promote efficiency by being able to

[23] Although see Greif (1995c).

force individuals to respect others' property rights. But how can a state with such coercive power commit itself to respect individuals' property rights? North (1981, chapter 3) has suggested that a state's ability or inability to provide such commitment is crucial to economic growth.[24] Several HIA studies examined the relations between the nature of the state, institutions that constrained its coercive power, and economic efficiency.

Greif, Milgrom, and Weingast (1994) examined, using an infinitely repeated complete information game the operation of an organization that enabled late Medieval rulers to commit to the property rights of alien merchants. The analysis indicates, theoretically and historically that commitment was enhanced by a particular organization – the merchant gild – that had the ability to coordinate merchants' responses to abuses and enforce merchants to participate in trade embargo. The existence of such organization enabled to constrained rulers from abusing at the efficient level of trade by credibly threatening with trade embargo in response to abuses.

Since trade relationships were expected to repeat, one may conjecture that a *bilateral reputation mechanism* (in which a merchant whose rights were abused ceased trading), or employing an uncoordinated *multilateral reputation mechanism* (in which a subgroup larger than the one that was abused ceased trading), could surmount this commitment problem. This conjecture, however, is wrong. Each of these mechanisms can support some level of trade, but neither can support the *efficient level of trade* (independently from the distribution of gains from trade and the ruler's discount factor). The bilateral reputation mechanism fails because, at the efficient level of trade, the value of 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 plausible different interpretations of facts, the multilateral reputation mechanism is prone to fail for a similar reason.

Multilateral reputation mechanism can potentially overcome the commitment problem at the efficient level of trade only when there exists an organization with the ability to coordinate the responses of all merchants to abuses against any merchant. It implies the existence of a Markov perfect equilibrium at which traders come to trade (at the efficient level) as long as the coordinating organization has never announced a boycott, but none of them come to trade if a boycott has been announced. The ruler respects merchants' rights as long as a boycott has never been announced, but abuses their rights otherwise.

[24] Weingast (1993) went further and argue that antebellum US's political system ensured property rights in slaves thus preventing military confrontation between the North and South. De Long and Shleifer (1992) found that non-absolutist regimes are positively and significantly correlated with cities' growth (as a proxy for economic growth) in Europe (1000-1800).

Although the behavior described forms a perfect equilibrium, the theory in this form remains unconvincing. When a coordinating institution declares an embargo merchants are deterred from disregarding it because they expect the ruler to abuse violators' trading rights. But are these expectations reasonable? Why would a ruler not *encourage* embargo-breakers rather than punish them? This encouragement is potentially credible since during an effective embargo, the volume of trade shrinks and the value of the marginal trader increases; it is then possible for bilateral reputation mechanisms to become effective. This possibility limits the potential severity of an embargo and potentially hinders the ability of any coordinating organization to support efficient trade. The efficient level of trade can be supported when a multilateral reputation mechanism is supplemented by an organization with the ability to coordinate responses and to ensure traders' *compliance* with boycott decisions. The traders must have some mechanism that makes the threat of collective action credible.

Direct and indirect historical evidence indicates that during the late medieval Commercial Revolution an institution with these attributes – the *merchant gild* – emerged and supported trade expansion and market integration. Merchant gilds exhibited a range of administrative forms – from a subdivision of a city administration, such as that of the Italian city-states, to an inter-city organization, such as the German Hansa. Yet their functions were the same: to ensure the coordination and internal enforcement required to make the threat of collective action credible.

The merchant gild mitigated a ruler's commitment problem by taking advantage of the territorial limits of his power. Within a ruler's territory, a ruler's commitment problem may be mitigated by endogenously limiting his power in a self-enforcing manner based either on his economic needs or the appropriate political organizations. The role of the ruler's economic needs in enabling him to commit to his subjects' property right was explored in several studies. For example, Root (1989) suggested that in Old Regime France, the king's commitment problem to his well organized financiers was mitigated through his dependency on them. Similarly, Conklin (1994) suggested that the Spanish king's dependency during the sixteenth century on the bureaucratic and military services provided by the Spanish elite enabled him to commit to pay his loans to them.

Rosenthal (1992) has gone further then these studies by examining the broader economic implications of endogenously limiting a ruler's ability to predate. In Old Regime France, the crown relied heavily on borrowing from venal officers who also filled the ranks of the judicial system. Thus, the crown did not reform this system although it was aware that it was undermining economic development. The judicial system undermined development since it was supposed to resolve disputes regarding property rights but the venal officers had no incentive to do so since they were paid by the case and thus

always willing to consider appeals. It could not commit to uphold the property rights it had assigned thus inhibiting efficient investment in land improvement.

North and Weingast (1989) examined the role of political institutions in constraining the English rulers and claimed that the Glorious Revolution (1688) fostered growth since it enhanced the King's commitment to securing private property rights. During the Glorious Revolution King's prerogatives were curtailed, his legal actions legal were clearly specified, an independent judiciary was formed, and the Parliament assumed control over taxation and revenues' allocation. These organizational changes limited the king's ability to predate on his subjects and they became self-enforcing by the Parliament's implicit threat to rise in arms against the king if the king abused his subjects' right. The main support for the view that the Glorious Revolution enhanced property right security is the rise, during the eighteenth century in the crown's debt, the reduction in the interest it paid, and the emergence of private capital markets in England.[25]

2. The Historical – Economic, Political, Cultural, and Social – Context, Institutional Selection, and Institutional Path-Dependence

As illustrated above, HIA studies utilize equilibrium analysis to identify institutions. They indicated that self-enforcing institutions emerged in various ways: the Maghribi traders coalition (Greif, 1993) evolved spontaneously while the credit cooperative (Guinnane, 1994) was intentionally created. At times organizations created to fulfill one function spontaneously evolved to fulfill another. The Parisian notaries were to enhance legal contract enforcement but mitigated asymmetric information (Hoffman et al. 1994). Yet, HIA studies are aimed at, and are able to achieve more than identifying institutions and their emergence. They are aimed at, and are able to shed light on the process of institutional selection and the factors contributing to institutional path dependence.

Whether spontaneous or selected, selection over self-enforcing institutions was influenced by the historical – economic, political, cultural, and social – context. That economic environment impact institutional selection have already been mentioned in the discussion of coalitions. Spot markets for products were well developed around the Mediterranean in the eleventh century but were absents from Mexican California leading to the emergence of distinct types of coalitions to govern agency relations

[25] Carruthers (1990) criticized the claim that limiting the king enabled England to borrow while Clark (1995) casted doubt on the claim that property rights were insecure prior to 1688. He examined the rate of return on private debt and land, and the price of land from 1540 to 1800 and was unable to detect any impact due to the Glorious Revolution.

(Greif, 1993; Clay, 1994). The impact of political factors on institutional selection is reflected in the analysis of the Merchant Gild (Greif, et al. 1994). It suggests that the political and economic process through which the Italian city-states grew large enabled each of them to function as merchant gild fostering the expansion of their trade. In Germany, cities emerged through a political process that led to the establishment of relatively small cities. Hence, only after a lengthy organizational development the German Hansa – an inter-city merchant gild – emerged to govern the relations between German merchants and foreign rulers. Finally, the rise of more centralized states in the early modern period led to the decline of local merchant gilds. Similarly, the nature and efficiency of agricultural credit cooperatives and the private order institutions that governed landlord-tenants relations in Ireland was influenced by the extent to which the state issued bonds and enforced particular laws (Guinnane, 1994, 1995).

Cultural and social factors also impact institutional selection. Distinct cultures provided different focal points while distinct social processes provided different initial networks for information transmission among the Maghribi and the Genoese traders leading to the emergence of distinct institutions in fundamentally the same situation (Greif, 1994a, 1995b). The Maghribis' cultural heritage made an equilibrium with collective punishment a focal point. They assimilated in a society whose members share the fundamental duty not only to practice good, but also to ensure that others do not practice sin and they were part of the Jewish community, within which it is a prominent idea that "All Israel is responsible for every member." Furthermore, they began trading around the Mediterranean after immigrating from Iraq to Tunisia. As common among immigrants they probably retained social ties that provided them the information network required to support collective punishment.

In contrast, Christianity during that period placed the individual rather than his social group at the center of its theology and hence the Genoese cultural heritage did not make a collectivist punishment focal point. Furthermore, for political reasons the number of Genoese active in trade rose dramatically toward the end of the twelfth century. At the same time, Genoa experienced a high level of immigration. In the absence of appropriate social networks for information transmission, collectivist punishment was not likely to emerge. Indeed, the historical evidence suggests that the Genoese did not practice collective punishment but "individualistic" one in which each merchant punished only an agent who cheated him and Genoa's legal system was used to additionally limit agents' ability to act opportunistically. Distinct social and cultural settings led to distinct institutions in fundamentally the same situation.

Guinnane (1994) reached similar conclusions regarding the importance of social and cultural factors in influencing institutional selection in a comparative study of credit cooperatives in Germany

and Ireland. The Raiffeisen agriculture credit cooperatives were a success in nineteen century rural Germany and provided a model for the introduction of similar organizations in Ireland in 1894. Yet, the Irish cooperatives were never economically viable. This is partially attributed to social and cultural difference between the two countries. The success of a cooperative depended on the monitoring and enforcement provided by its own members. Yet, social and cultural factors led to distinct equilibria in Germany and Ireland. The one that prevailed among the German rural people entailed monitoring each other and punishing in case of need but the one that prevailed among the Irish rural population did not entail such behavior.[26]

HIA studies reveal variety of reasons that led to institutional change. Institutional change was due to technological change (Guinnane, 1994), political changes (Rosenthal, 1992; Greif et. al. 1994); and observed organizational failure (Greif et. al. 1994, Greif, 1996). Institutional changes were also generated endogenously due to changes induced by the operation of the institution itself (Greif, 1994b, 1994c). Finally, institutions changed due to a change in exogenous variables. An example of such institutional change is provided by Hoffman et al. (1994). They found that population increases changed the function of the Parisian notaries. The notaries were an organization established to foster legal contract enforceability and this provided them with private information regarding their clients' creditworthiness. Hence, when Paris grew and asymmetric information hindered credit relations the notaries became the intermediaries that mitigated this problem.

As this example illustrates, HIA studies indicate that institutional development exhibits path-dependence.[27] Past expectations and organizations influence the process of institutional development. Particularly, institutional path dependence was found to be due to acquired knowledge and information, economies of scale and scope associated with existing organizations, coordination failure, and distributional issues.[28] Yet, perhaps the most intriguing observation with respect to institutional path-dependence is that it was found to be related to linkage between games, namely to the nature of responses to exogenous changes in the rules of the game and to the process of organizational innovations through

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[26] The paper does not contain an explicit model making further elaboration on the relations between culture and these two equilibria difficult.

[27] On the general theory of path dependence see David (1988, 1992a); on path dependence and institutions, see North (1990) (who emphasizes economics of scale and scope, network externalities, and subjective view of the world) and David (1994) (who emphasizes conventions, information channels and codes as "sunk" organizational capital, interrelatedness, complementaries and precedents).

[28] Knowledge: Hoffman et al. (1994); Scale, scope, and coordination: Greif (1994a). Distribution: Rosenthal (1992).

which institutions are endogenously changed.

Classical game theory does not have much to say about linkages among games. The establishment of an organization profitable to those who can bring it about is an action which, in the absence of coordination failure would be recognized and hence realized at the outset.[29] Similarly, the actions to be taken following an expected change in the rules of the game are a part of the (initial) equilibrium strategy combination while the equilibrium that would be selected following an unexpected change in the rules of the game has no relations with the equilibrium that prevailed prior to the change.

Yet, Greif (1994a, 1996) has found that equilibrium selected following an unexpected change in the rules of the game had predictable relations with the equilibrium that prevailed prior to the change. Furthermore, the equilibrium that prevailed prior to the change was related in a predictable manner to historically subsequent organizational innovations. Particularly, expectations associated with past equilibria were a good predictor of the expectations that prevailed following an exogenous change in the rules of the game and a good predictor of the nature of organizational change. Such expectations became "cultural beliefs," as they transcended the original game in which they had been crystallized and provided the initial conditions for the selection of a strategy in others, historically subsequent strategic situations.

Specifically, the rules of the game regarding agency relations that the Maghribis and the Genoese traders faced during the late medieval period changed. Following various military and political events around the Mediterranean, both groups could expand their trade to areas previously inaccessible to them. As far as agency relations are concerned, such expansion could have been done in an "integrative" manner, namely, by hiring agents from the new area or in a "segregative" manner, namely, by having some of them emigrate to the new trade centers and provide agency services. In a game theoretical analysis, the equilibrium that would be selected following such a change in the rules of the game has no relations to the equilibrium that previously prevailed. Game theory does not specify a mapping from an equilibrium in one game to that of another.

The experience of the Maghribis and the Genoese, however, indicates an appropriate mapping. It suggests that the (off and on-the-path-of-play) expectations associated with the pre-change equilibrium transcended the boundaries of the original game and provides the focal point for the selection of a new equilibrium. In other words, these expectations became a cultural element – cultural beliefs - that provided the initial condition in a dynamic adjustment process through which the new equilibrium is reached.

[29] If there is a coordination failure the organization would never be introduced.

To consider the possible impact of cultural beliefs, suppose that they provide the initial condition in a dynamic adjustment process through which a new equilibrium is reached following the change in the rules of the game experienced by the traders. From a merchant's point of view, taking the pre-change equilibrium strategies as initial condition implies that the profitability of establishing inter-community agency relations depends on the expected responses of the merchants from the agent's community to the agent's actions. Although the merchants from the agent's economy can be expected to respond in various ways, two responses predominate. For any agent's action in inter-economy agency relations, these merchants can regard him either as one who cheated or did not cheat one of them. There is nothing in the pre-change expectations, however, that indicates which of these responses will be selected following an action. Accordingly, assume that in inter-economy agency relations any probability distribution over these two responses can possibly be expected. Considering the pre-change expectations and any such probability distributions as initial conditions provides the mapping required for the examination of a merchant's decision whether to establish inter-economy agency relations (while not imposing any differences between the pre-change economies apart from their expectations).

Given this general mapping, what would the merchants' best response be as a function of their expectations? When the equilibria in two pre-change economies entailed collective punishment, the initial expectations specify collective punishment in intra-economy agency relations. Any uncertainty about whether collective punishment also governs inter-economy agency relations increases the wage required to pay the agent inter-community agency relations relative to intra-community agency relations. A decline in the severity of the punishment for cheating must be offset by an increase in the reward for honesty. As the merchants' cost of establishing inter-economy agency relations is higher than the cost of establishing intra-economy agency relations, only the latter will be initiated, and segregation is the end result. If inter-economy agency relations are more efficient, they would be initiated only if the efficiency gains are sufficiently large. This is not the case in the absence of collective punishment as the wage required to keep agents honest is the same in inter- and intra- community agency relations. Hence, whenever inter-community agency relations are more efficient they will be initiated and integration would result.[30]

Hence, theoretical considerations indicate how expectations regarding off-the-path-of-play that constrained on-the-path behavior in one strategic situation, if projected into another strategic situation can direct equilibrium selection, economic efficiency, and social structure. The historical evidence

[30] Greif (1994a) also analyzes the case when only one economy practiced collective punishment.

regarding the impact of these cultural beliefs is consistent with the theoretical predictions. The Maghribis responded in a segregated manner not only toward non-Jews but also with respect to other Jewish traders even when agency relations with them were (ignoring agency cost) perceived by the Maghribis as very profitable. The Genoese however, responded in an integrated manner and although the historical sources are biased toward reflecting agency relations among Genoese, they nevertheless clearly indicate the prevalence of agency relations between Genoese and non-Genoese.

The comparative analysis of the Maghribis and Genoese also suggests the sources of uneven development of organizations related to trade in the Italy and the Muslim world during the late medieval period. Differences that, as discussed above could not have been accounted for in the NIEH. HIA, however, link these differences to cultural beliefs that impact the process of organizational innovations. Cultural beliefs provide the initial conditions that influence incentives to introduce various organization and determine their impact. Hence, cultural beliefs imply path dependence in organizational change while the implications of adopting a particular organization depends on the prevailing cultural beliefs.

While Greif (1994a) elaborates on the origin of various organizational difference between the Maghribis and Genoese, consider, for example, the rise of the family firm among the Italian traders (Greif, 1996). When the Maghribi and Genoese merchants first began trading in the Mediterranean, it was common in both groups for a trader's son to start operating as an independent merchants during his father's lifetime. During the 13th century, however, the Italian traders adopted the family firm, the essence of which was a permanent partnership with unlimited and joint liability. This organization preserved the family wealth undivided under one management, and a trader's son, reaching the appropriate age, joined his family's firm. It was now the firm, rather then an individual trader that hired agents. The Maghribi traders, after being active in trade for centuries did not establish a similar organization.

Cultural beliefs provide a consistent explanation for this uneven organizational development when they are assumed to guide expectations with respect to the equilibrium that would be achieved following the organizational change. When agency relations are governed by a reputation mechanism, the lower is the probability that agency relations will be terminated despite the agent being honest the lower is the wage required to keep an agent honest. The magnitude of this reduction, however, is a function of the expectations associated with the particular reputation mechanism being used. It is lower under collective punishment since the probability that a cheater will be rehired is lower and the probability that an honest agent will be rehired is higher than otherwise. Collective punishment and reducing the probability of forced separation are substitute.

Hence, since the Maghribis practiced collective punishment a Maghribi merchant could not gain much, if anything by introducing an organization that reduces the likelihood of forced separation. Among the Italian traders who did not practice collective punishment, however, merchants were motivated to increase the security of the employment they offered their agents and the family firm seems to have been the manifestation of this desire. They formed an organization with an infinite life-span and a lower probability of bankruptcy to replace each individual merchant in his relationship with agents.

Once particular organization is established, it can impact subsequent institutional development by fostering institutional path dependence. Trivially the establishment of the family firm led to the emergence of complementary innovations such as a market in firms' shares and appropriate accounting procedures. Similarly, Guinnane (1994) found that during the nineteen century past organizations in Ireland influenced further organizational development. In Ireland, state run post office widely distributed state bonds. The easy access to such bonds in Ireland but not in Germany undermined Irish agricultural credit cooperatives. Similarly, the exact nature of various merchant gilds reflect prior organizational development (Greif, et al. 1994). In England, for example, the King provided local gilds with monopoly over retail trade and the threat of exclusion from this monopoly was used to ensure the merchants' compliance with boycott decisions. In the Italian cities, however, the legal system was used to ensure merchants' compliance with boycott decisions.

Yet, the examination of organizational innovations and path-dependence reveals what is, from (classical) game theoretical perspective a puzzle. Organizational innovations seems to have taken a prolong period of time rather than being an instantaneous selection of the appropriate actions. The Italians, for example, experimented at least for over a century until they invented the double entry bookkeeping although this invention neither depended on new technology nor involved any strategic interaction.

This puzzle suggests that it may be misleading to view individuals as fully strategic in the sense that they have full knowledge and understanding of all possible actions and their consequences. While this does not contradict the equilibrium analysis conducted above since it focused on actual rather than potential institutions. Yet, it indicates the need to further examine the process of institutional innovation. Several inter-related approaches seem promising. Slow institutional development may reflect – similar to the introduction of new technologies – an increase in the stock of knowledge due to intentional pursuit of organizational improvement or the outcome of unintentional experimentation. Slow institutional development may reflect subjective comprehension of reality (North, 1990). Finally, it may reflect bounded rationality or behavioral rules of action. More generally, the observation that strategic analysis

was found useful for the study of actual institutions while it is insufficient to fully comprehend the process of institutional development indicates, once more, to the relevance of Simon's (1961 [1947]) observation that individuals are intentionally "rational, but only limitedly so" (p. xxiv). What seems to be required is exploring the factors determining the domain of strategic and non-strategic behavior.

One of the broad insights that emerged from HIA analyses relates to empirical implications of the Folk theorem of infinitely repeated games. The Folk Theorem provides a deductive theory of contract enforcement which is applicable under variety of information structures if the players are sufficiently patients.[31] Hence, it seems to have rendered inductive institutional analysis of contract enforcement – the focus of most HIA studies – obsolete. Yet, some HIA studies revealed the empirical irrelevance of the conditions required for the Folk theorem to hold (e.g., Milgrom et al, 1990; North, 1991; Greif, 1995b). But even when these conditions were likely to hold, the empirical analyses indicate that organizations emerged and affected the equilibrium set while the exact nature of the equilibrium selected effected subsequent organizational and institutional development (e.g, Greif, 1989, 1994a; Greif et al. 1994).

HIA also indicates the complexity of the interrelations between private order and state supported institutions that are usually considered as substitute.[32] For example, the existence of state issued bonds in nineteenth century Ireland undermined the operation of the private order institutions that could support the operation of credit cooperative (Guinnane, 1994). The functioning of the merchant gild required supplementing the reputation based enforcement in the relations among traders and a ruler with legal enforcement within each merchant community (Greif, et. al. 1994). Distinct self-enforcing private order institutions may imply distinct demand for state supported institutions. For example, the nature of the private order institution that governed agency relations among the Genoese traders, but not the Maghribi traders entailed demand for a specific type of contract enforcement by the state (Greif, 1994a, 1995b). At times, the institutional foundations of the state itself were effected by the nature of the existing private order institutions. The French kings' ability to alter property rights, for example, was constrained by the self-enforcing organizations they had created (Rosenthal, 1992).

More generally, HIA studies indicate complex interrelations of a society's economic, cultural, social and economic features. For example, the different institutions that governed agency relations among the Maghribis and Genoese contributed much to their distinct distinct social and cultural characters which, in turn, reinforced their economic institutions. Among the Maghribis, collectivist

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[31] Fudenberg et. al. (1991); Kandori (1992); Ellison (1993).

[32] See Greif (1994d) for elaboration.

cultural beliefs led to a collectivist society and economic self-enforcing collective punishment, horizontal social structure (namely, a trader functioned as merchant and agent at the same time), social segregation, and an ingroup social communication network. Among the Genoese, individualist cultural beliefs led to an individualist society with a vertical and integrated social structure and relatively low level of communication. To the extent that one hold that values evolves over time to justify pattern of economic and social behavior, these distinct economic and social systems were likely also to lead to distinct values (Greif, 1994a, 1995b).

Concluding Remarks

Three approaches contemporary in economic history utilize micro-economic theory to examine historical institutions. They have in common the objective of examining different aspects of the institutional structures of past societies. The neo-classical approach examine the extent to which the market operated in the past and legally enforceable contractual forms used to mitigate market imperfections. NIEH examines property rights, rules, and regulations defined and enforced by the state and the implications of transaction cost on their efficiency. HIA is an inductive approach that utilizes micro-level historical studies and strategic models to examine self-enforcing institutions.

These approaches build on and supplement each other providing a rich representation of the complexity of economic institutions in past societies. All three approaches still have to resolve various obstacles. As elaborated with respect to the neo-classical approach but equally true with respect to the other two approaches, institutions' (in)efficiency implications are usually argued based on theoretical insights rather than empirical evidence. Neither have developed an appropriate methodology to measure the efficiency implication of an institution. A similar problem exists with respect to the efficiency implications of technological changes. Fogel (1964) proposed to measure a technology's impact by constructing a counter-factual model of the economy assuming that the technology under examination is absent. This methodology, however, remained controversial in economic history and it is even more problematic with respect to institutions since there are usually no prices and cost for the institution's "service" and its alternatives.[33] Similarly, all three approach have examined the relations between institutions and efficiency but have not find an appropriate manner to explicitly link institutions and growth.

These deficiencies as well as the need for more empirical studies and better understanding of

[33] See, e.g., David (1969).

institutional innovations, notwithstanding studies of historical economic institutions already contributed much to our understanding of institutions and the historical process of institutional development. Particularly, they indicate the need to examine the institutional structure of an economy as a system of inter-related elements in which social, cultural, and political factors – and not only economic efficiency – influence the selection over and the path dependence of economic institutions. Hence, not only that institutions are not necessarily efficient (Greif, 1994d) but the adoption of efficient institutions may be hindered by institutional path dependence. For example, since institutions combine organizations and expectations one society would not be able to adopt an institution of another simply by implementing the associated organization. Unless the appropriate expectations are adopted as well, the same organization would have distinct economic implications. Understanding the failure of societies to adopt the institutions of more economically and political successful ones seem to require better comprehension of their historical process of institutional development.

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