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"Trust in God – But Tie Your Camel First." The Economic Organization Of The Trans-Saharan Slave Trade Between The Fourteenth and Nineteenth Centuries

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Abstract

This paper examines the economic organization of the trans-Saharan slave trade between the fourteenth and the nineteenth centuries on those routes that moved slaves from Sudanic Africa via *entrepôts* in the Sahel and Sahara to the Maghrib. The commercial framework of this trade was integrated into ethnic, cultural, and religious systems, yet for its efficient operation could not rely solely on these social institutions. The paper considers temporary cooperation of itinerant slave traders and then projects them onto the broader patterns of commercial organization. It is shown that similar pressures resulted in comparable outcomes: partnerships were formed to take advantage of economies of scale in commercial services and to limit cooperation problems. This demonstrates that the organization of the trans-Saharan slave trade was economically rational and can be analysed in terms of cooperative and non-cooperative strategies. Moreover, it is argued that the trade was not restrained by social institutions but versatile in adapting its economic institutions to specific market imperfections. It is concluded that institutional economics and game theory are more useful in explaining the economic behaviour of those involved in the slave trade than standard neoclassical economics.

Throughout human history trade and exchange have been integral to the internal development and external interaction of economies. The correlation between market exchange and economic growth has been observed by such diverse figures as the fourteenth-century Arab historian Ibn Khaldun and the eighteenth-century Scottish moral philosopher and economist Adam Smith. Long-distance trade in particular has been the hallmark of the integration of the world economy in the early modern and modern periods and remains the *raison d’être* for the ongoing processes of globalization. Before the dramatic decline in transport costs in the nineteenth century, it was generally true that the longer the distance, the more trade was confined to commodities with high value-to-bulk ratios. Trade in such goods was potentially more profitable than local or regional commerce, especially for powerful groups that barred entry to others.[1] This does not, however, imply that long-distance trade was always limited to luxuries: the Saharan salt trade is a prime example of the long-distance trade of an essential commodity across hundreds of kilometres of difficult terrain to the West African savannah.[2] The complementary needs and endowments that characterized this exchange of salt for Sudanese cereals, cloths, and slaves, prompted the nineteenth-century German explorer Heinrich Barth to ponder how deeply ingrained the principles of exchange are in the laws of nature.[3]

Accordingly, much historical research and scholarly debate has centred on the role of long-distance trade in the processes of economic growth and the development of mercantile capitalism in Africa and elsewhere. Moreover, trade has long been identified as a major agent in the propagation of cultural identities, moral values, and ideologies.[4] In contrast to these approaches, this paper takes a microeconomic perspective, focussing on the organization of the trans-Saharan slave trade in an environment of cross-cultural encounters and ambiguous or absent political authorities. Trans-Saharan traders had to adapt to unique geographical and institutional challenges by negotiating variable balances between competition and collaboration. The trans-Saharan slave trade

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[1] 'Such groups are easy to find once one starts looking for them, in Europe and even outside Europe.' F. Braudel, *Civilization and Capitalism, Vol. II: The Wheels of Commerce*, trans. S. Reynolds (London: Collins, 1982), p.153.

[2] See, for instance, E.A. McDougall, 'The Ijil Salt Industry: its Role in the Pre-Colonial Economy of the Western Sudan' (unpublished Ph.D. thesis: University of Birmingham, 1980), *passim*, and P.D. Curtin, *Cross-Cultural Trade in World History* (Cambridge: Cambridge University Press, 1984), pp.17f.

[3] H. Barth, *Reisen und Entdeckungen in Nord- und Central-Afrika in den Jahren 1849 bis 1855* (Gotha: Justus Perthas, 1857), vol. I, p.571. Unless otherwise indicated, all translations from German are the author's.

[4] See, for instance, R.C. Foltz, *Religions of the Silk Road: Overland Trade and Cultural Exchange from Antiquity to the Fifteenth Century* (London: Macmillan, 1999), ch.2.

therefore provides a valuable case study for game theory and institutional economics. Game theory has equipped microeconomics with new models for analysing interactions between economic actors and is used here to shed new light on a trade that has hitherto been interpreted in cultural or religious terms.

To show that the organization of the slave trade was economically rational, it is necessary to consider it in the context of its institutional environment. Secure markets, a basic assumption of neoclassical economics, were lacking. Consequently, it is examined how economic organization was shaped by, and interacted with, the institutional framework in terms of property rights, transaction costs, and asymmetric information. In a recent compilation of studies in institutional economics Douglass North and his collaborators point out that the field still appears to be 'long on theoretical analysis but short on empirical work.'[5] This paper aims to make an empirical contribution by testing the main tenets of the theory in a specific historical case study.

This discussion covers the fourteenth to the nineteenth century.[6] Due to the scarcity of primary sources, a longer period allows for the inclusion of more diverse perspectives and demonstrates the dynamic of the trade as it adapted its organization and institutions to changing conditions. A briefer time span would generate a static impression of what was in fact a highly versatile commercial network. The starting point of this discussion, the fourteenth century, marks an important shift in trans-Saharan commerce, following the transformation of the West African gold trade and the expansion of the slave trade.[7] The fourteenth century is

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[5] L.J. Alston, T. Eggertson, and D.C. North, 'Introduction', in L.J. Alston, T. Eggertson, and D.C. North (ed.), *Empirical Studies in Institutional Change* (Cambridge: Cambridge University Press 1996, p.1.
[6] Unless otherwise indicated, all dates refer to the Gregorian calendar.
[7] The fourteenth-century decline in the trans-Saharan gold trade was caused by the falling demand for and price of gold in Europe as a result of its famines and epidemics.

also significant in that it offers a number of valuable sources that afford direct insights into the trade. The terminus of this discussion, the nineteenth century, is also marked by an external dynamic that transformed the trans-Saharan slave trade. The growing political influence of European powers culminating in direct colonial rule gave weight to abolitionist forces that hindered and displaced the trade in slaves at a time otherwise characterized by its continued expansion, with more Africans enslaved and exported in the nineteenth century than in any preceding one. The tension between these trends ultimately resulted in the trade's demise, but also spawned a great number of sources to reflect on the trade, the slow progress of abolition, and the opportunities for European traders to market their goods through the existing networks.[8]

As suggested above, the slave trade was just one component of a complex network of exchange. This paper focuses specifically on the trade in slaves for three reasons. First, slaves were universally demanded for military, administrative, mercantile, productive, domestic (including sexual), and social (prestige) purposes by societies on all sides of the Sahara as well as within the desert itself. That this demand continued to be met by supplies is evident in the continuous increase in the numbers of slaves exported across the Sahara from the fourteenth to the

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In the mid-fifteenth century, growing population and production in Europe brought about a fall in all prices relative to gold, making the import of and search for gold extremely profitable. The subsequent Portuguese establishment of fortified trading centres on the Gold Coast undermined the caravan trade in gold. See P. Vilar, *A History of Gold and Money, 1450-1920*, trans. J. White (London: Verso 1984, orig. publ. 1969), pp.36f. and ch.5-6.

[8] The statement about the demise of the trans-Saharan slave trade in the late nineteenth century must be somewhat qualified, in that there is evidence of the persistence of slavery in modern-day Mauritania and Sudan. See R. Segal, *Islam's Black Slaves: A History of Africa's Other Black Diaspora* (London: Atlantic Books 2001), ch.12. For an autobiographical account of contemporary enslavement in the Sudan see M. Nazer and D. Lewis, *Slave: My True Story* (New York: Public Affairs 2004).

nineteenth century.[9] For this reason the slave trade lends itself more readily to an examination over a sustained period than the trade in other goods such as gold, ivory, horses, or ostrich feathers that were not universally demanded and were subject to supply bottlenecks or changes in demand. Second, with the fourteenth-century decline of the gold trade, slaves became the main export from Sudanic Africa and constituted the major share of the total value of the trans-Saharan caravan trade, without which many routes would hardly have existed: in 1858, the British Consul-General in Tripoli estimated that the slave trade accounted for 'more than two-thirds of the value of all the caravan trade.'[10] This predominance of the slave trade in trans-Saharan commerce is clearly reflected in contemporary sources. It is thus appropriate to scrutinize the organization of trans-Saharan trade in terms of its principal commodity. Lastly, slaves were widely used as currency, with important implications for transaction costs and credit arrangements. In fact, some Sudanic rulers refused to pay merchants by any other means than slaves, while nineteenth-century Moroccan merchants continued to insist on payment in slaves to the dismay of the French colonial administrators.[11]

The traditions of the Prophet Muhammad contain the saying 'Trust in God – but tie your camel first', which aptly encapsulates the theme of

[9] See Table 2 below. This does not, however, imply that the volume of traffic was constant and expanding on all routes; the conditions under which particular trade routes flourished or declined are discussed below.

[10] G.F. Herman [1858], as cited in A.A. Boahen, 'The Caravan Trade in the Nineteenth Century', *Journal of African History*, 3, 2, (1962), p.358. The Sudan (with the adjective Sudanic rather than Sudanese) is defined throughout this discussion not as the modern state, but the region spanning from east to west between the southern edge of the Sahara and the wet tropical regions in the south.

[11] Leo Africanus, *The History and Description of Africa and of the Notable Things therein contained*,
3 vols., trans. J. Pory, ed. R. Brown (London: Hakluyt Society, 1896), vol. III, p.833.; *cf.* M. Gordon, *Slavery in the Arab World* (New York: New Amsterdam, 1989), p.113.

this study.[12] It is shown that the commercial framework of the trans-Saharan trade in slaves was integrated into ethnic, cultural, and religious systems but for its efficient operation could not rely solely on such social institutions. It was the development and continuous adaptation of economic institutions, especially coalitions based on informal reputation and sanction mechanisms, that accounts for the survival and expansion of the trans-Saharan slave trade throughout the period. These institutions, in turn, were defined by the unique commercial circumstances created by the need to traverse the world's most expansive and arid desert.

1. Institutional Economics and Game-Theoretical Models

Modern economics is based on the premise that scarce resources are most efficiently allocated through voluntary exchange. The neoclassical economic model assumes a discrete market with perfect information, competition, and contracting and free entry, which is in contrast to the historical reality of imperfect markets with asymmetric information, entry barriers, and transaction costs.[13] These conditions give rise to the principal-agent problem in which agents acting on behalf of principals have the opportunity to act in their own interest by neglecting their obligations to the principal. Game theory has demonstrated that this problem characterizes most exchanges more complex than direct barter, and cannot be theoretically resolved using the model of an anonymous market. In the trans-Saharan slave trade this problem was particularly accentuated as the spatial scope and slow communication rendered

[12] *Cf.* I. Shah, *Caravan of Dreams* (London, Melbourne, New York: Quartet Books 1978), p.4.
[13] Here understood as the costs resultant from the search, negotiation, and enforcement of contracts; *cf*. R.H. Coase, 'The Nature of the Firm', *Economica*, new series, 4, 16 (1937), *passim*.

monitoring extremely costly and the high external risks involved meant that outcomes could not be directly linked to the agent's performance.

Table 1: One-Sided Prisoners' Dilemma

	Agent Cooperates	*Agent Holds Up*
Principal Invests	C_P, C_A	L_P, W_A
Principal Doesn't Invest	0, 0	0, 0

Key: $C_P > 0$; $C_A > 0$; $L_P < 0$; $W_A > C_A$.
Source: adapted from A.K. Dixit, *Lawlessness and Economics: Alternative Models of Governance* (Princeton: Princeton University Press, 2004), p.15f.

Table 1 shows that an agent's dominant strategy is to take an opportunistic action (*Hold Up*) to win his best possible payoff ($W_A > C_A$). In the context of sixteenth-century European companies, Carlo Cipolla writes that the 'merchant to whom others entrusted their savings could easily have disappeared with the capital or cheated in business conducted in far-off markets where none of his associates had any control.'[14] It will be seen that North African merchants who employed agents in caravans as well as in distant markets faced a similar situation. In the model, the principal incurs a negative payoff ($L_P < 0$) as a result of his agent's opportunism and in anticipation of this event his optimal strategy is (*Don't Invest*) to prevent the loss of his investment. While this model is based on opportunism as a consequence of imperfect enforcement, it might also be applied to shirking as a result of imperfect contracting.[15] Hence, the predicted outcome is no interaction and therefore no payoffs (0,0). Yet the greatest economic benefit could be

[14] C.M. Cipolla, *Before the Industrial Revolution: European Society and Economy, 1000–1700* (London: Routledge, 2nd edn, 1981), p.198.
[15] *Cf.* D.C. North, *Structure and Change in Economic History* (New York, London: W.W. Norton & Co., 1981), p.204.

achieved through (*Invest, Cooperate*) with the associated cooperative pay-offs (C_P,C_A). To resolve this dilemma, the agent has to be able to credibly commit himself to cooperation.

> 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.[16]

The first way in which institutions can underpin commitment is through the threat of direct penalty for deviation, for example imprisonment, which is usually dependent on the existence of political authority. These legal sanctions have been the focus of much of the existing literature.[17]

> 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, transactions cost economics, and contract theory – enabled us to extend the scope of analysis.[18]

These new theoretical tools have allowed for the inclusion of a new understanding of economic institutions to enter the theoretical framework. Most recently, a sub-field that Avinash Dixit tentatively entitled 'Lawlessness and Economics' conceptualizes the 'alternative institutions that support economic activity when a government is unable or unwilling to provide adequate […] enforcement of contracts through the machinery

[16] A. Greif, 'The fundamental problem of exchange: A research agenda in Historical Institutional Analysis', *European Review of Economic History*, 4, 3 (2000), p.251.
[17] See, for instance, P.R. Milgrom, D.C. North, and B.R. Weingast, 'The Role of Institutions in the Revival of Trade: The Law Merchant, Private Judges, and the Champagne Fairs', *Economics and Politics*, 2, 1 (1990) for a discussion of the development of the European *Lex Mercatoria*.
[18] A. Greif, 'The fundamental problem of exchange', p.252.

of state law.'[19] While this multidisciplinary research area aims at generating models of institution-building in modern-day developing countries, its underlying assumptions also match the conditions faced by trans-Saharan slave traders and is therefore better suited than conventional neoclassical economics to analyse their exchange relations.

This revised understanding suggests a further way of resolving the Prisoners' Dilemma of Table 1 which is not necessarily dependent on formal authority, namely through the economic incentives offered by repeated games. If an agent's long-term gain offered by repeated interactions with the same principal outweighs the immediate benefits of cheating, *ceteris paribus* the payoff matrix is modified to make (*Cooperate*) his dominant strategy. However, to collect his repeated payoffs, he has to be able to credibly commit to cooperative behaviour to induce the principal to invest or, in other words, to trust him. Trust, in an economic context, can be defined as 'a particular level of subjective probability with which an agent assesses that another agent or a group of agents will perform a particular action […] *before* he can monitor such action'.[20] Hence an agent's ability to generate trust in his *ex ante* commitment can itself be regarded as a commodity necessary for long-distance exchange relations, especially when information and monitoring are costly.[21]

> The development and spread of […] partnership contracts [in early-modern European companies] would not have been

[19] A.K. Dixit, *Lawlessness and Economics: Alternative Models of Governance* (Princeton: Princeton University Press, 2004), p.vii.
[20] D. Gambetta, 'Can We Trust Trust?', in D. Gambetta (ed.), *Trust: Making and Breaking Cooperative Relations* (New York, London: Basil Blackwell, 1988), p.217; emphasis in the original.
[21] For the notion of trust as a commodity see P. Dasgupta, 'Trust as a Commodity', in D. Gambetta (ed.), *Trust: Making and Breaking Cooperative Relations* (New York, London: Basil Blackwell, 1988), pp.49-73

> possible without the precondition of a spirit of mutual trust and a sense of honesty in business.[22]

The notion of a sense of honesty based on social and personal righteousness implied in the above quotation may have indeed facilitated exchange relations between principals and agents with similar backgrounds. It is telling that the Arabic word for agent, *wakīl* (وكيل), shares a common root with the word for trust, *tawakkul* (توكل). For the trans-Saharan trade, the shared religion (and often common ethnic origin) of merchants north and south of the desert certainly created a mutual notion of honourable behaviour in business dealings. However, a more reliable institutional response to the problem of trust is a reputation mechanism as identified by Avner Greif in his study of the *Geniza* documents relating to Jewish traders in the eleventh-century Maghrib.[23] A reputation mechanism is the establishment of a linkage between past conduct and future utility. An agent can credibly commit to cooperative behaviour if his loss of future utility from acquiring a reputation for dishonest behaviour would outweigh his immediate benefit from cheating.

When the Prisoners' Dilemma is extended from a bilateral relation between one principal and one agent to a number of possible principals and agents, the reputation mechanism becomes a valuable way of establishing an agent's trustworthiness based on the experience of other principals. At the same time, sanctioning will be more effective as the opportunistic agent is excluded from a greater number of potential future transactions and therefore incurs greater loss of future utility for his immediate gain. However, these forms of collective action also suffer disadvantages as the speed of detection, information-transmission, and sanction decreases and a new set of potential monitoring problems

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[22] C.M. Cipolla, *op. cit.*, p.198.
[23] A. Greif, 'Reputation and Coalitions in Medieval Trade: Evidence on the Maghribi Traders', *Journal of Economic History*, XLIX, 4 (1989), pp.857-882.

arises. These problems intensify when, as in the trans-Saharan slave trade, the distinction between the two groups is not fixed, with principals at times acting as agents for other principals. It follows that the *n*-person Prisoners' Dilemma is only soluble under historically specific conditions, which are usually characterized by an identifiable and stable group of potential participants, benefits to cooperation large enough to offset increased monitoring and enforcement costs, and frequent intra-group communication.[24] Organization theory predicts that such private-order institutions will be created when cooperation can achieve economic benefits that the market fails to capture: 'Faced with the prospect that autonomous traders will experience contracting difficulties, the parties may substitute internal organization for the market.'[25]

Greif concludes for the Maghribi traders that the economic institution of the reputation mechanism, and not social control or ethics, played a central role in enabling the agent to credibly commit to his contractual obligations.[26] This study serves to strengthen this emphasis on the role of economic institutions in pre-modern long-distance trade. While the Substantivist interpretation of West African economic history is now largely discredited, similar propositions for the trans-Saharan trade have remained largely unchallenged.[27] Marie Perinbam, for instance,

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[24] *Cf.* A.K. Dixit and S. Skeath, *Games of Strategy* (New York, London: W.W. Norton & Co., 2nd edn., 2004), pp.400-403. For an assessment of the relative potentials for expansion of a reputation-based trading system versus one based on an external legal process, see Greif's comparison of medieval Maghribi and Genoese traders in A. Greif, 'Cultural Beliefs and the Organization of Society: A Historical and Theoretical Reflection on Collectivist and Individualist Societies', *Journal of Political Economy*, 102, 5 (1994), pp.912-950.

[25] O.E. Williamson, *The Economic Institutions of Capitalism: Firms, Markets, Relational Contracting* (New York: Free Press, 1985), p.20.

[26] A. Greif, 'Reputation and Coalitions in Medieval Trade', p.859.

[27] For an assessment of the Substantivist historiography for West Africa, see G. Austin, 'The Problem of "Embeddedness" and Global Economic History', Paper presented at the 3rd Global Economic History Network Workshop, Konstanz, 3 to 6 June, 2004, pp.1-3, and W. Kaese, 'Sklaverei in Afrika: Annäherung an eine Definition', in H. Bley, C. Dillmann, G. Krüger, H.-H. Pogarell (eds.), *Sklaverei in Afrika: Afrikanische*

suggests that ‘in the western Sahara and neighbouring Sudanese pre-capitalist-industrial societies, economic function and organization of long-distance trade were for the most part embedded in social organization’.[28] Without altogether discounting the importance of social norms, ties and ethics, it is argued here that the trans-Saharan slave trade relied on the development of a specific set of economic institutions based on individual utility-maximising behaviour and market-orientation that can be analysed with the concepts of institutional economics and game-theoretical models.

The distinction between social and economic institutions is essentially one of degree, and North’s definition of institutions as ‘humanly devised constraints that shape human interaction’ is suited to encompass both.[29] For the purposes of this discussion, institutions are regarded as economic if they primarily serve to facilitate exchange relations and, symmetrically, as social if their primary function is not directly economic. It may be said, of course, that all institutions facilitate economic life by creating order and lowering the cost of coordinating human interaction.[30] The following discussion will show, however, that for analysing the organization of long-distance trade it is useful to distinguish between the general milieu of shared social institutions and those economic institutions superimposed onto this background in order to overcome specific obstacles to commercial exchange.

Gesellschaften im Zusammenhang von europäischer und interner Sklaverei und Sklavenhandel (Pfaffenmeiler: Centaurus Verlags-Gesellschaft, 1991), pp.9-13.

[28] B.M. Perinbam, ‘Social Relations in the Trans-Saharan and Western Sudanese Trade: An Overview’, *Comparative Studies in Society and History*, 15, 4 (1973), p.416; also see B.M. Perinbam 1977, ‘Homo Africanus: Antiquus or Oeconomicus? Some Interpretations of African Economic History’, *Comparative Studies in Society and History*, 19, 2 (1977), pp.156-178.

[29] D.C. North, *Institutions, Institutional Change and Economic Performance* (Cambridge: Cambridge University Press, 1990), p.3.

[30] *Cf.* W. Kasper and M.E. Streit, *Institutional Economics: Social Order and Public Policy* (Cheltenham: Edward Elgar, 1999), pp.2-6 and pp.27-33.

2. Setting and Sources

'Allah, say the Moslems who worship him, wanted to have one place in the world where he could walk in peace. So he removed from the desert all unnecessary life. The great Sahara is called the Garden of Allah.'[31] To mere humans, the Sahara has rarely invoked the image of a garden: at nearly the size of Europe, it is the world's largest and most arid desert. It stretches from the Atlantic Ocean in the west to Egypt and the Red Sea in the east, from the Mediterranean Sea and the Atlas Mountains in the north to the Niger River valley and Sudan in the south.

The vastness of the Sahara is often compared to that of a sea, which may explain why its southern desert-edge region is referred to as the Sahel, from the Arabic word for coast (ساحل, *sāhil*). It was a transition zone in terms of climate, culture, commerce, and transport. A great number of slaves subjected to the trans-Saharan trade originated from this region. Many more were brought here from further south and assembled at southern caravan termini such as Walata, Timbuktu, or Kano.[32]

The nomadic inhabitants of the desert and Sahel can be divided into four main groups: Moors, Tuareg, Teda, and Arabs.[33] As the present study is not concerned with ethnology, it follows Ann McDougall's paradigm in reducing the diverse 'tribal tapestry' to the concept of 'Saharan societies'.[34] While this approach does not reflect the gradations

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[31] C.R. Joy, *Desert Caravans: The Challenge of the Changing Sahara* (London: Chatto & Windus, 1963), p.13.
[32] In the interest of clarity, names of persons and places have been Anglicized using the commonly employed transliterations.
[33] *Cf.* K.S. Vikør., 'The Oasis of Salt: The History of Kawar, a Saharan Centre of Salt Production' (unpublished Ph.D. thesis: University of Bergen, 1979), pp.9-14.
[34] H.T. Norris, *The Arab Conquest of the Western Sahara* (Beirut: Libraire du Liban, 1986), p.1; E.A. McDougall, 'Research in Saharan History', *Journal of African History*, 39, 3 (1998), p.473.

and evolution of tribal identities throughout the period, it allows for an overall consideration of their role in the trans-Saharan slave trade.

Until recent times, human habitation of, and trade across, the Sahara were only possible through what can indeed be described as the desert's gardens: oases. The distribution of these fertile havens determined the patterns of life and traffic. Command over a major oasis was generally tantamount to controlling its trade routes. For caravans, the most critical factor affecting the choice of itinerary was the seasonal availability of water.[35] Oases were advantageous stop-overs for traders in another respect, namely their production of dates. According to the accounts of several European observers, these fruits were a staple food for caravans and especially slaves due to their high energy-to-weight ratio.[36] As their growers depended on trade for most other foodstuffs, oases became 'islands of consumption' and significant commercial centres in their own right.[37] As such they also facilitated trade between caravans and thus 'served as points where the batons of the trans-Saharan commercial relay were changed.'[38]

The notion of the Sahara as the great divide between Mediterranean North Africa and sub-Saharan Africa that shapes our understanding of the continent to the present time is, in fact, comparatively recent. With the arrival of Europeans in West Africa and the growing competition between caravel and caravan, first for gold and later for slaves, the Sahara 'lost its economic centrality and with it, its role in Africa's destiny.'[39] Although the trans-Saharan slave trade continued to expand until the late nineteenth century, the desert and its commercial

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[35] E.A. McDougall, thesis, p.235.
[36] *Cf.* P.D. Curtin, *Cross-Cultural Trade in World History* (Cambridge: Cambridge University Press, 1984), p.23.
[37] *Cf.* E.A. McDougall, 'Research in Saharan History', p.468, and A.G. Hopkins, *An Economic History of West Africa* (Harlow: Addison Wesley Longman, 1973), pp.79-87.
[38] A.A. Boahen, 'The Caravan Trade in the Nineteenth Century', p.355.
[39] E.A. McDougall, 'Research in Saharan History', p.468.

networks became peripheral as North and West Africa were integrated into the world economy. This development is evident in the sources available for the study of trans-Saharan trade. While the fourteenth to seventeenth centuries are described by merchants, travellers, and historians of Arabic descent, European explorers, emissaries, and abolitionists dominate the narratives of the two subsequent centuries.

Much of the Sahara's modern historiography has persisted in this tradition. While there are numerous studies of the Sudan and the ancient empires of Ghana, Mali, and Songhay, there is not yet an encompassing history of the medieval trans-Saharan trade and its relation to the economic development of the large area it affected. This makes it necessary to consult a wide range of related specialist studies.

The limited scholarly attention that the organization of the trans-Saharan slave trade has received, compared to the vast literature on the Atlantic trade, may be partly result of the scarcity of quantitative data. The extant primary sources are for the most part characterized by a singular absence of information on costs, commissions, and profits. Furthermore, business records and correspondence, that impart information for the Atlantic and Mediterranean commercial circuits, are entirely lacking for the trans-Saharan trade. This fact in itself is suggestive of the different organizational form of the caravan trade. Murray Gordon argues that it was dominated by *petits commercants* who exchanged slaves wherever opportune and conducted business on a personal basis without the need for bookkeeping.[40] These were, however, only one aspect of the trade: it is argued here, that it was actually a complex and interconnected system that allowed for expansion beyond the personal level. Although, for a number of reasons, it never created an entirely impersonal market with external enforcement mechanisms as in the Atlantic model, the trans-

[40] M. Gordon, *Slavery in the Arab World* (New York: New Amsterdam, 1989), p.11.

Saharan slave trade was able to mobilize capital and credit on a large scale and maintain an elaborate system of partnerships and coalitions along the desert routes. The fact that there are no surviving records of the (in Anthony Hopkins' phrase) 'merchant princes of the caravan trade' and their partnerships must therefore be attributed to causes other than their lack of commercial sophistication.[41]

With the onset of active European involvement culminating in colonialism, any inclination traders may have had to maintain records were discouraged by anti-slavery edicts and the penalties occasionally imposed by Western powers.[42] Furthermore, in the societies within and south of the Sahara, the written word was scarcely used. This accounts not only for the lack of information on the slave trade's suppliers and middlemen but also for scarcity of accounts by 'the victims of this great human tragedy [who] were silent witnesses to what they experienced and observed.'[43] A notable exception to this is the life history of Griga. Born in the region of Sokoto around 1848, he was captured, traded across the Sahara, sold at Timimoun in the Algerian Sahara, and later freed. In the 1940s he encountered the commander of the French outpost, F. J. G. Mercadier, and revealed in a series of interviews much about his life as a slave. The record of this encounter is clearly influenced by Mercadier's own biases as a colonial officer but is a remarkable account from the perspective of a slave.[44] Another rare and unusual narrative is that of Captain Riley. Commander of a U.S. merchant ship that was wrecked of the West Coast of Africa in 1815, he was captured and sold to Saharan

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[41] A.G. Hopkins, *op. cit.*, p.86.
[42] Gordon, *op. cit.*, p.11.
[43] *Ibid.*, p.11
[44] The author would like to express his gratitude to Dr David Gutelius of Stanford University for making available his manuscript translation; F.J.G. Mercadier, 'L'esclave de Timimoun', trans. D.P. Gutelius, J.O. Hunwick, in D.P. Gutelius, J.O. Hunwick (eds.), *Griga: A Life History of a Saharan Slave* (Princeton: Markus Wiener, forthcoming).

slave traders. Riley convinced one of the traders, Sidi Hamet, to convey him across the desert to Morocco to be ransomed to the British consul. Riley amazingly developed a sincere admiration of the slave merchant while describing the dreadful reality of crossing the Sahara as a slave.

The remaining sources used for this study can be classed into two groups. First, there are sources of Arabic or North African origin. Ibn al-Khatīb's fourteenth-century history *The Encompassment* contains an important description of the organization of the trans-Saharan trade by a merchant from Tlemcen whom al-Khatīb met in Granada. Ibn Battūta's *Rihla*, also of the fourteenth century, is significant in that it is the first report by an author who undoubtedly himself crossed the desert.[45] One of the most cited sources for Saharan history is the sixteenth-century book *The History and Description of Africa*, written by the Moroccan Berber al-Hassan al-Wazzan, better known by the name he adopted after his conversion to Christianity, Leo Africanus.[46] He visited Timbuktu in 1511 and traversed the Sahara again in 1513 to journey along the southern Sahel. *An Account of Timbuctoo and Housa* by El Hage Abd Salam Shabeeny is particularly valuable, as the author was himself an active merchant. He was captured by pirates, released by the British consul, and questioned while awaiting a ship for his return to Morocco. Shabeeny gave accounts of his family business as well as of a journey from Fez to Timbuktu that he had undertaken in 1787.[47]

The earliest of the sources of European origin is that of Réné Caillié, a Frenchman who reached Timbuktu from West Africa in 1828

[45] *Cf.* N. Levtzion, 'Ibn-Hawqal, the Cheque, and Awdaghost', *Journal of African History*, 9, 2 (1968), p.224 for his reservations about Ibn-Hawqal's alleged visit to Awdaghast four centuries earlier.
[46] For a biography of Leo Africanus see D. Rauchenberger, *Johannes Leo der Afrikaner: Seine Beschreibung des Raumes zwischen Nil und Niger nach dem Urtext* (Wiesbaden: Harrasowitz Verlag, 1999), pp.27-101.
[47] El Hage Abd Salam Shabeeny, *An Account of Timbuctoo and Housa*, ed. J.G. Jackson (London: Longman, Hurst, Rees, Orme and Brown, 1820).

and then crossed the desert to the Moroccan coast. He travelled independently under an assumed Muslim identity and described places which other European travellers would not reach for almost another century. James Richardson undertook two major expeditions between 1845 and 1851 at the behest the British Government. His complex journeys were notable achievements, although many of his observations are coloured by his strong anti-slavery sentiments. When Richardson died in 1851, his travel companion Heinrich Barth assumed leadership of the expedition. Barth was an excellent linguist and Adu Boahen considers 'the detail and scientific accuracy of his observations [to] stand unexcelled in the annals of the exploration of Africa.'[48] Another German, the physician Gustav Nachtigal, travelled in the Sahara for six years between 1868 and 1874, initially on a mission to Borno on behalf of the Prussian king and later independently. Nachtigal was awed by Africa and Africans and encountered the slave trade with raiders, in caravans, and in markets.[49]

As there are so few sources for such a prolonged period of time, the perspective of their authors becomes an integral part of the story. They are necessarily impressionistic and for the most part composed by outsiders who invariably project their own concepts and judgements onto their observations. Furthermore, as they are literary works composed with hindsight, it is necessary to distinguish, as far as possible, between the historical traveller and the author's projected *persona*.

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[48] A.A. Boahen, *Britain, the Sahara, and the Western Sudan, 1788–1861* (Oxford: Clarendon Press, 1964), p.viii.

[49] Much of Allan and Humphrey Fisher's work on the African slave trade is based on Nachtigal's travelogue; *cf.* A.G.B. Fisher and H.J. Fisher, *Slavery and Muslim Society in Africa: The Institution in Saharan and Sudanic Africa and the Trans-Saharan Trade* (London: Hurst & Co, 1970), pp.1-8, and H.J. Fisher, *Slavery in the History of Muslim Black Africa* (London: Hurst & Co., 2001), pp.xvii-xxi.

3. Itinerant Slave Traders: Temporary Coalitions

The trans-Saharan slave trade was characterized by the scope of its network, the high entry cost required in capital and knowledge, and the potentially large returns on this capital.[50] This chapter examines the resultant commercial structures and temporary coalitions. These can be divided into three categories: *(a)* the nature of caravans as temporary coalitions of heterogeneous actors; *(b)* the consequences of the constant threat of violence from within the caravan and from external agents; and *(c)* the slave trade's volume and profitability.

(a) Caravan Trade

The caravan trade across the Sahara was of remote antiquity, although the conventional view that chariots regularly crossed the desert as early as 1000 B.C. has been challenged in recent years.[51] It was, however, only with the introduction of the camel in the first centuries B.C., that sustained commercial communication between the Mediterranean world and the Sudan became possible. Camels were only able to survive in the Sahel during the dry season and even then could not venture further south as they were highly susceptible to disease. This combined with the cost of awaiting a sufficient number of slaves to be assembled in places other than the large permanent markets of the southern termini, acted as a disincentive for traders to venture further south to exclude intermediary merchants.

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[50] This corresponds to the general definition of long-distance trade in O. Pétré-Grenouilleau, 'Long-Distance Trade and Economic Development in Europe and Black Africa (Mid-Fifteenth Century to Nineteenth Century)', *African Economic History*, 29 (2001), p.165.

[51] See A.A. Boahen, 'The Caravan Trade in the Nineteenth Century', p.349 (drawing on Mauny and Lhote) for the traditional view, based on the interpretation of archaeological finds, and R.A. Austen, *African Economic History: internal development and external dependency* (London: James Currey, 1987), pp.32f. for its revision.

Within the Sahara, the camel enjoyed a distinct transport cost advantage over donkeys, oxen, and human porterage: it carried a third more freight than a donkey, required fewer drivers, could survive longer without fresh water, and was able to traverse a full sand desert that no other domesticated animal could negotiate.[52] So although camels were about five times more expensive than donkeys, they represented a significant saving in human labour and overall transport costs.[53] This transport advantage resulted in the 'geographical anomaly whereby it was cheaper to transport goods a greater distance by camel than follow a shorter route by donkey or oxen.'[54] It is, thus, not surprising that most of the region's commerce lay in the hands of camel-breeding Saharans who controlled the volume, routes, and seasonality of trade across the desert. Their seasonal transhumance and reliance on trade for basic needs provided the framework for their specialization in providing services for the trans-Saharan commerce.[55]

Caravans were ephemeral commercial entities formed to serve an immediate purpose.[56] These great moving communities reflected Muslim society at large in their socio-economic stratification and organization, with an *amīr* (امير) for leadership and a *qādi* (قاضي) to adjudicate

[52] J.L.A. Webb, Jr., *Desert Frontier: Ecological and Economic Change along the Western Sahel, 1600–1850* (Madison: University of Wisconsin Press, 1995), p.11.
[53] P.D. Curtin, *Economic Change in Precolonial Africa. Senegambia in the Era of the Slave Trade* (Madison: University of Wisconsin Press, 1975), p.280.
[54] E.A. McDougall, 'Camel Caravans of the Saharan Salt Trade: Traders and Transporters in the Nineteenth Century', in C. Coquery-Vidrovitch, P.E. Lovejoy (eds.), *The Workers of African Trade* (Beverly Hills, London, New Delhi: Sage Publications, 1985), p.102.
[55] *Cf.* S. Baier and P.E. Lovejoy, 'The Tuareg of the Central Sudan: Gradations in Servility at the Desert Edge (Niger and Nigeria)', in S. Miers, I. Koptyoff, *Slavery in Africa: Historical and Anthropological Perspectives* (Madison: University of Wisconsin Press, 1977), pp.394f.
[56] R.A. Austen, 'The Trans-Saharan Slave Trade: A Tentative Census', in H.A. Gemery, J.S. Hogendorn (eds.), *The Uncommon Market. Essays in the Economic History of the Atlantic Slave Trade* (New York, San Francisco, London: Academic Press, 1979), p.28.

disputes.[57] The travellers elected the *amīr*, whose position depended on his past performance and often that of his forebears.[58] During his forced desert crossing as a slave, Captain Riley, who had navigated ships to many parts of the world, observed that the slave trader Sidi Hamet's knowledge of the motion of the stars was superior to his own.[59]

The *amīr*'s role in the realization of the caravan's commercial objectives went beyond guidance. Caravans were rarely formed for the transfer of one single commodity to one specific market, and generally took advantage of any commercial opportunities *en route* to pay for services, increase their capital, or convert their goods into those most highly demanded in their final port of call.[60] Upon arrival at a trading centre, caravans continued to act as a single entity under the leadership of the *amīr*, in negotiations with political authorities over tax payments and with local business coalitions over prices.

The arrival of a major annual caravan, importing large quantities of otherwise scarce commodities, could significantly deflate prices and hence profits for the itinerant traders. It was thus in their collective interest to agree on a fixed price below which a commodity would not be exchanged. This strategy, however, necessitated monitoring and credible sanction mechanisms to prevent opportunism of individual traders. This was further complicated by the differentiation in the value of slaves, often based on subjective criteria; prices varied widely according to sex

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[57] R.E. Dunn, *The Adventures of Ibn Battuta, a Muslim traveler of the fourteenth century* (Berkeley, Los Angeles: University of California Press, 1986), p.38. Larger caravans required a more complex organization with a number of subordinate officials; *cf.* P.D. Curtin, *Economic Change in Precolonial Africa*, p.271.
[58] Captain Riley, *Sufferings in Africa: Authentic Narrative of the Loss of the American Brig Commerce, wrecked on the Western Coast of Africa, August 1815, with account of the suffering of her surviving officers and crew, who were enslaved by the wandering Arabs on the great African Desart, or Zahahrah*, ed. G.H. Evans (New York: Clarkson N. Potter, 1965; first publ. 1817), p.268.
[59] *Ibid.*, p.261.
[60] *Cf.* A.G. Hopkins, *op. cit.*, p.63.

(including eunuchs), age, ethnicity, and ability. Similarly successful cooperation could forestall an inflation of slave prices that would result from the surge in demand caused by a caravan's arrival.

While the basic foundations for mutual trust among the caravan community were laid by the long and dangerous journey across the desert, cooperation was reinforced through economic institutions. In late eighteenth-century Cairo, the French physician Louis Frank observed the arrival of slave caravans from Dar Fur, Murzuk, and Borno.[61] He noted that the sultan appointed one or two caravan chiefs who were 'entrusted not only with maintaining order but further with selling the slaves as well as other products on the sultan's account'.[62] Saharan and Sahelian *entrepôts* feared large, well-armed caravans and insisted that representatives negotiate on behalf of the group. Slave caravans in particular had their own incentives to camp outside of towns to prevent escapes. These factors aided the caravan in maintaining its corporate structure as a moving trading cartel and enabled it to dominate trade. 'As temporary merchant associations, caravans acted as cartels which controlled prices and minimized tax payments.'[63] Shabeeny gives an example of this in his description of late eighteenth-century Timbuktu, where Moorish traders refused to pay duties by threatening to boycott its market.[64]

A central question in the analysis of the trans-Saharan slave trade is why these coalitions remained short-lived arrangements, and did not

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[61] Louis Frank, 'Mémoire sur le commerce des nègres au Kaire, et sur les maladies auxquelles ils sont sujets en y arrivant [Memoir on the Traffic of Negroes in Cairo and on the Illnesses to which they are Subject upon arrival there]', trans. M. Le Gall, in S.E. Marmon (ed.), *Slavery in the Islamic Middle East* (Princeton: Markus Wiener, 1999), p.75.
[62] *Ibid.*, p.73.
[63] P.E. Lovejoy, *Caravans of Kola: The Hausa Kola Trade, 1700–1900* (Zaria, Nigeria: Ahmadu Bullo University Press, 1980), p.107.
[64] Shabeeny, *op. cit.*, p.14.

develop into permanent corporate entities comparable to the European slave-trading companies. Anthony Hopkins argues that the trans-Saharan caravan trade had reached its optimum point of organizational efficiency at an early date.[65] Camel transport was slow, risky even on well-established desert routes, and labour-intensive. Furthermore, this part of the enterprise remained under the control of the desert nomads, who were able to maintain a stranglehold over the whole Saharan transport system.[66]

> Over the 11 or so centuries during which [slave] trade flourished in the Sahara it was impossible to make improvements in the technology of camel transport that would have allowed or encouraged merchants to treat this part of their enterprise as a fixed capital investment over which it might be worthwhile to exercise fuller control. Instead, the camels and the land through which they travelled always “belonged” to the Bedouin inhabitants of the Sahara, who made a series of short-term arrangements with merchants for services and protection.[67]

The frequency with which caravans perished of hunger or thirst and the appalling conditions of slaves during the crossing suggest that traders sought to economize on costly provisions because most other expenses were outside their control.

The absence of large corporations was thus not a failure to develop suitable economic institutions, but due to insurmountable exogenous constraints. Moreover, unlike maritime trade, caravan trade suffered from diseconomies of scale. These became apparent during the colonial period, when greater security of routes and markets allowed for smaller caravans with lower overheads and greater flexibility.[68] Prior to this

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[65] A.G. Hopkins, *op. cit.*, p.81.
[66] *Cf.* J.L. Wright, '“Nothing Else But Slaves”: Britain and the Central Saharan Slave Trade in the Nineteenth Century' (unpublished Ph.D. thesis: University of London, 1998), p.59.
[67] R.A. Austen, 'The Trans-Saharan Slave Trade', p.28.
[68] A.G. Hopkins, *op. cit.*, p.63.

period, these advantages were outweighed by the economies of scale in protection, as the threat from brigands did not grow in proportion caravan size. The following part examines the role violence and protection played in the organization of the trans-Saharan trade.

(b) Violence and Protection

The principal reason for the formation of caravans in the trans-Saharan trade was defence against the threat of violence by human agents in an environment of political instability. S.D. Goitein uses the *Geniza* documents to emphasize this function. He shows that the threat of violence was so pervasive that caravans were formed not only for the desert crossing but also for shorter journeys in densely populated areas.[69] Caravans were usually well armed and adopted a variety of tactics to discourage attacks. However, Barth observed on various occasions that open attack was not the preferred tactic of desert brigands; rather, they tended to exploit the Islamic precept of hospitality to infiltrate the caravan at resting places and take advantage of tensions within the heterogeneous group. Barth, to his personal cost, witnessed that this strategy 'usually accomplished its purpose'.[70] Of all moving communities, slave caravans had the greatest internal tension, that between captors and captives, and were therefore especially vulnerable to tactics of infiltration. However, almost all sources relate the particularly miserable conditions of slaves retained within the desert by nomadic tribes, the knowledge of which may have led slaves to cooperate with their 'legitimate' owners against brigands. Slave traders trusted so much in this imposed cooperation that they even armed slaves with crossbows and

[69] S.D. Goitein, *A Mediterranean Society, Vol. I: Economic Foundations* (Berkeley, Los Angeles: University of California Press, 1967), p.276.
[70] H. Barth, *op. cit*., vol. I, p.312.

later firearms on dangerous routes.[71] Captain Riley and his remaining crew were faced with this situation on several occasions, and always allied themselves with the professional slave traders in the hope of reaching the northern desert edge where slaves could generally expect better conditions and a greater chance of escape.

Nonetheless, Riley and others report direct attacks, even on the largest caravans, by bands of 'well-prepared wandering Arabs' specialising in brigandage.[72] Such incidents notwithstanding, his philosophical conclusion, that the wandering Arab's 'hand is against every man, and consequently every man's hand is against him', is an oversimplification of the complex interplay of threat and protection exercised by desert tribes.[73] McDougall and others suggest that arrangements for the hire rather than purchase of camels was an expression of the complex system of taxation that regulated flows of commerce across the desert.[74] The price paid for Saharan guides and camels included a premium for the provision of protection, an arrangement concurrent with theoretical observations about the economics of violence: 'the production of protection depends on the control of violence; the use of violence is only one among a number of possible means to that end'[75]

These arrangements were based on a system of tribute and competition between different desert tribes and politico-military authorities. Leo Africanus reports frequent skirmishes between nomads

[71] Leo Africanus, *op. cit*, vol. III, pp.828f.
[72] Riley, *op. cit.*, pp.290f. Caillié suggests that the fearsome reputation these tribes acquired meant that many caravans surrendered even to inferior forces; R. Caillié, *Travels through Central Africa to Timbuctoo; and across the Great Desert, to Morocco, performed in the years 1824–1828*, 2 vols. (London: Colburn and Bentley, 1830), vol. II, p.90.
[73] *Ibid.*, p.316
[74] E.A. McDougall, 'Camel Caravans of the Saharan Salt Trade', p.118.
[75] F.C. Lane, 'Economic Consequences of Organized Violence', *Journal of Economic History*, 18, 4 (1958), p.402 fn.

and those who refused tribute payments, often resulting in captives being sold as slaves to the markets in Timbuktu.[76] The demand for tribute was possible as ‘no king or prince can subdue [the nomads] in the desert’, giving them a military monopoly over the vital desert routes.[77] Barth made similar observations for the Tuareg around Ghat and their tribute system of *Gherama*, from which tribes related by blood were exempt and those regarded as commercial rivals had to pay the highest rate.[78] The extra profits some trading enterprises made as a result of such lower protection costs can be described as protection rents.[79]

Barth noted that the competition between tribes often resulted in immense detours for caravans and reduced market efficiency in the region.[80] Game theory serves to analyse this situation as a multi-player Prisoners’ Dilemma. As the demand for slaves could only be met by supplies from across the desert, all Saharan tribes would benefit from a cooperative oligopoly with the highest possible rates of tribute short of making the trade altogether unprofitable. Because their military superiority in the desert was unchallengeable until the late nineteenth century, this would have been their dominant strategy if cooperation could be coordinated and enforced. However, as a number of routes and *entrepôts* were in use, not all tribes would have benefited equally from an economically optimal situation in which all caravans took the shortest or preferred routes. Unless all associated costs and gains could be shared uniformly across the desert, opportunism and free-rider problems would occur, exacerbated by costly communication. Hence, a variety of competitive equilibria occurred in which different tribes at different times sought to monopolize traffic by creating conditions favourable to

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[76] Leo Africanus, *op. cit*, vol. III, p.825.
[77] *Ibid.*, p.939.
[78] H. Barth, *op. cit*., vol. I, p.194.
[79] F.C. Lane, *op. cit.*, p.409.
[80] H. Barth, *op. cit*., vol. I, p.194.

commerce on their routes and unfavourable on others. At the same time, their own route had to remain sufficiently 'dangerous' to justify the exaction of protection payments. On his return from Mali, Ibn Battūta observed the different methods of extortion of the tribes whose territories his caravan crossed on the route from Timbuktu to Sijilmasa. While the *Bardāma* Berbers who had to be hired as guards are described in almost admiring tones, the *Hakkār* (Hoggar) Berbers who stop the caravan and also insist on their share of its goods are plain 'scoundrels'.[81] However, Ibn Battūta did not reflect on the alternative of a *Bardāma* protection monopoly: once a violence-controlling enterprise eliminates all competitors from a territory, it could reduce the cost it incurred in producing and selling protection. As a monopoly it would not have to reduce its extortions in line with falling costs, but could even raise them until it discouraged trade or attracted the entrance of new competitors.[82] Thus, the competition between the *Bardāma* and the *Hakkār* was in the interests of caravan traders, especially when conducted without actual resort to violence which could delay commerce, destroy goods, and raise insurance costs. In this context, the problem of cooperation and resulting Prisoners' Dilemma of the suppliers of violence was desirable from the standpoint of traders, as it prevented the creation of cartels which could act as protection monopolies.

Political authority on a larger scale was, at times, able to resolve these Prisoners' Dilemmas, as is evident between 1490 and 1590 when the stability imposed by the Songhay and Borno empires coincided with a peak in the trans-Saharan commercial traffic.[83] The failure of the

[81] Ibn Battūta, *The Travels A.D. 1325–1354. Translated with Revisions and Notes from the Arabic Text Edited by C. Défrémery and B.R. Sanguinetti*, 5 vols., ed. H.A.R. Gibb, later C.F. Beckingham, latterly A.D.H. Bivar, trans. H.A.R. Gibb, later C.F. Beckingham (Cambridge: Hakluyt Society, 1958–2000), vol. IV, p.972 and p.976.
[82] *Cf.* F.C. Lane, *op. cit.*, p.404.
[83] A.A. Boahen, 'The Caravan Trade in the Nineteenth Century', pp.349f.

Moroccans to establish control after their overthrow of the Songhay empire in 1591 saw the immediate deterioration of security along the western route, which never fully recovered. Similarly, Ibn Khaldun reported for the fourteenth century, that the town of Buda had been abandoned and the route shifted to Tamanlit as Bedouin Arabs took to brigandage.[84] During the seventeenth and eighteenth centuries, rivalries over the western route led to it being used only by large annual caravans and this period is associated with the decline of both Timbuktu and Gao.[85] In the nineteenth century, by contrast, the Ghadames-Air-Kano route flourished as its Saharan part was controlled by two of the most powerful Tuareg branches who guaranteed security and honesty.[86] This enabled the more frequent and flexible traffic of small caravans to use this route: Richardson, for instance, was surprised to meet between Agades and Ghat a caravan of 'only two owners, three or four servants, and some forty or fifty slaves, and all without arms, or perhaps with only a couple of swords'.[87] Likewise, the eastern route linking Benghazi with Abécher became an important avenue of trade in the second half of the nineteenth century, as it was spanned in its entirety by a single powerful organization, the Sanusiya brotherhood. Their easing of tribal conflicts and eventual exercise of direct control over the route stimulated trade, facilitated coordination, and promoted cooperation as the dominant strategy.[88]

[84] Ibn Khaldun, 'Kitab al-'ibar [The Book of Examples]', trans. J.F.P. Hopkins, in N. Levtzion, J.F.P. Hopkins (eds.), *Corpus of early Arabic Sources for West African History* (Cambridge: Cambridge University Press, 1981), p.339.
[85] A.A. Boahen, 'The Caravan Trade in the Nineteenth Century', p.350.
[86] *Ibid.*, p.352.
[87] J. Richardson, *Narrative of a Mission to Central Africa, performed in the years 1850–51 under the orders and at the expense of Her Majesty's Government*, 2 vols. (London: Chapman and Hall, 1853), vol. I, p.325.
[88] D.D. Cordell, 'Eastern Libya, Wadai and the Sanusiya: A Tariqa and a Trade Route', *Journal of African History*, 18, 1 (1977), pp. 31ff.

Whereas this stylised model treats Saharan tribes as homogenous actors, game theory can also be applied to the cooperation problems occurring within the highly stratified tribes. ‘Tuareg society, constructed in a pyramidal fashion with nobles on top and various levels of dependents and servile groups below, was dominated by a few aristocratic leaders who in effect acted as managers of large firms.’[89] The existence of principal-agent problems within tribes is described by both Nachtigal’s travelogue and the *Geniza* documents, which indicate that Bedouin escorts were themselves a possible threat to their employers.[90] In addition, Richardson frequently complained that his guards used every chance to renegotiate the terms of their agreement (‘making a new favour of an old bargain’).[91] Such opportunistic behaviour of individual groups could undermine the overall profitability of tribute exaction on a particular route by making it less attractive to caravans. Since these nomadic societies did not produce written records, their intra-tribe strategies for resolving such Prisoners’ Dilemmas are not known, and may only ever be partially reconstructed through oral history projects.

(c) Volume and Profitability

As noted above, the slave trade became the mainstay of the trans-Saharan commerce after the fourteenth century. Echoing the debate over the volume of the Atlantic slave trade, the question of the total number of slaves exported across the Sahara continues to be strongly contested, not least because of the paucity of quantitative evidence. Table 2 contrasts the estimates of Raymond Mauny and Ralph Austen.

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[89] P.E Lovejoy and S. Baier, ‘The Desert-Side Economy of the Central Sudan’, *International Journal of African Historical Studies*, 8, 4 (1975), p.554.

[90] G. Nachtigal, *Sahărâ und Sûdân. Ergebnisse sechsjähriger Reisen in Afrika* [Sahara and Sudan. Results of six years of travels in Africa], 3 vols., third vol. ed. E. Roddeck (Berlin, later Leipzig: Wiegandt, Hempel & Parey, later F.A. Brockhaus, 1879–89), vol. II, pp.239f., and S.D. Goitein, *op. cit.,* p.280

[91] J. Richardson, *Narrative of a Mission to Central Africa*, vol I, p.163.

Table 2: Quantitative Assessments of the Trans-Saharan Slave Trade

	Estimate of Trans-Saharan Slave Exports (Mauny 1971)	*Estimate of Trans-Saharan Slave Exports (Austen 1979)*	*Estimates of Total Maghribi Slave Imports [a] (Austen 1992)*
1300-1400	1,000,000	550,000[b]	n/a
1400-1500	2,000,000	430,000	n/a
1500-1600	2,000,000	550,000	n/a
1600-1700	2,000,000	710,000	n/a
1700-1800	2,000,000	715,000	683,000[c]
1800-1880	1,600,000[d]	1,165,000	580,990
Total Estimate	10,600,000	plus 5% desert-edge retention and plus 20% mortality *en route* 5,150,000	

Sources: R. Mauny, *Le siècles obscurs de l'Afrique noire: Histoire et archéologie* (Paris: Fayard,1970), p.240f.; R.A. Austen, 'The Trans-Saharan Slave Trade', p.66; R.A. Austen, 'The Mediterranean Islamic Slave Trade Out of Africa: A Tentative Census', in E. Savage (ed.), *The Human Commodity: Perspectives on the Trans-Saharan Slave Trade* (London: Frank Cass, 1992), pp.223-227.

[a] The imports quantified here refer only to black slaves from the Sudan. It has been estimated that in addition to these figures, more than one million white European slaves entered the North African markets between the sixteenth and eighteenth centuries; see R.C. Davis, *White Slaves, Muslim Masters: White Slavery in the Mediterranean, the Barbary Coast, and Italy, 1500–1800* (Basingstoke: Palgrave Macmillan, 2003), ch.1 and 2.
[b] Based on an annual average of 5,500 between 1100 and 1400; for an assessment of the evidence and political conditions for the fourteenth century see Austen, 'The Trans-Saharan Slave Trade', p.64.
[c] All figures are adjusted for *en route* death rates using Austen's estimates of 20% for Libya, 10% for Algeria, 6% for Morocco, and 15% for Libya and weighing them according to the share of imports each country received in the respective periods; *cf.* Austen 'The Mediterranean Islamic Slave Trade Out of Africa', p.227 fn.
[d] Mauny only provides the global estimate of 2,000,000 for the entire nineteenth century. For the purposes of this tabulation, this figure has been adjusted using decadal averages.

These tentative estimates suggest an average figure of slaves crossing the desert of 18,276 and 8,879 per annum respectively. As the slave trade was closely integrated into the exchange of other commodities and subject to significant fluctuations in relative prices, it is difficult to recreate how profitable it was to individual merchants. The model calculation in Table 2 (adapted from Dietrich Rauchenberger's interpretation of Leo Africanus' *History and Description*) constructs a hypothetical balance sheet of the slave trade between Fez and Gao in the sixteenth century.

Table 3: Model Calculation for the Trans-Saharan Slave Trade in the Sixteenth Century

Transaction	*Quantity*	*Commodity*	*Location*	*Cost or Price*	*Total*	*Ratio to Capital*
Capital	1,000	Ducats[a]	Fez	n/a	1,000	
Purchase	100	Horses	Fez	1,000	1,000	1.00
Mortality *en route*	20%	Horses	Fez to Gao	200	800	.80
Sell	80	Horses	Gao	3,600	3,600	3.60
Customs/Tribute	10%	Ducats	Gao	360	3,240	3.24
Purchase	540[b]	Slaves	Gao	3,240	3,240	
Mortality *en route*	20%	Slaves	Gao to Fez	648	2,592	2.59
Sell	432	Slaves	Fez	8,750	8,750	8.75
Transport[c]	100	Camels	Roundtrip (4 months)	1,000	7,750	7.75
Personnel (Guides, Guards, Porters)[d]	20		Roundtrip (4 months)	1,000	6,750	6.75
Resident Representatives	unknown		Fez and Gao	1,000	5,750	5.75

Source*:* D. Rauchenberger, *Johannes Leo der Afrikaner: Seine Beschreibung des Raumes zwischen Nil und Niger nach dem Urtext* (Wiesbaden: Harrasowitz Verlag, 1999), pp.222-228.

[a] Rauchenberger suggests that 28 grams of gold (i.e. one Roman ounce) equalled 6⅓ ducats which approximated the price for a slave; *cf.* Rauchenberger, *op. cit.*, p.223.

[b] Ibn Battūta's observation of a caravan that carried six hundred female slaves is used as an indicator for the approximate size of a typical caravan; Ibn Battūta, *op. cit.*, vol. IV, p.975.

[c] Assuming that 100 horses or 540 slaves require 100 camels for the carrying of provisions, and that they need to be replaced after the first leg of the journey. The price of a camel is estimated at 5 ducats; *cf.* Leo Africanus, *op. cit.*, vol. III, p.939 and Rauchenberger, *op. cit.*, p.224f.

[d] Based on the assumption of 20 qualified employees, earning 2 ducats a week for four month plus provisions and other expenses; Rauchenberger, *op. cit.*, p225.

The model calculation supports the notion of super-normal profits proposed by nineteenth-century European observers, who judged that the trade yielded returns of 300 to 500 per cent 'with the least possible risk or trouble to the merchant'.[92] In a more cautious deliberation, Nachtigal estimated that north of the Sahara, traders received three to four times the purchase price of their slaves *before* cost.[93] The trade cycle took caravans usually around four months, but was possible only once a year for climatic reasons. This meant that a single roundtrip had to cover the fixed costs for the entire year.

It is evident that the trade was lucrative enough to ensure its persistence throughout the centuries despite high risks and often unpredictable costs, particularly as specialization in highly demanded eunuchs or female slaves had the potential to raise profit margins in times of higher external costs. These costs may, in fact, have differed significantly from Rauchenberger's estimates: while Leo Africanus frequently mentions such costs, he at no point quantifies them. The model also does not account for tribute payments to Saharan tribes or protection costs incorporated in the hiring of camels. There is almost no data for the level of taxes levied, with the exception of Shabeeny who estimates that in Timbuktu in 1787 they were 4 per cent *ad valorem*.[94] Further complications of Rauchenberger's calculation lie in the price fluctuations of gold and horses relative to slaves, the great variations in the prices of slaves that were often dependent on subjective criteria, and the difficulties in estimating escapes and mortality.[95]

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[92] Harris [1844], as cited in H.J. Fisher, *op. cit.*, p.101. Also see J. Giri, *Histoire économique du Sahel: De empires à la colonisation* (Paris: Éditions Karthala, 1994), pp.102-109.
[93] G. Nachtigal, *op. cit.*, vol. II, p.65.
[94] Shabeeny, *op. cit.*, p.14.
[95] For a tabulation of horse prices relative to slaves in the western Sahel between *c.*1450 and 1906 see J.L.A. Webb, Jr, 'The Horse and Slave Trade between the Western Sahara and Senegambia', *Journal of African History*, 34, 2 (1993), pp.236-

This brief consideration of the profitability of the trans-Saharan slave trade prompts the question to whom these profits accrued: *cui bono*? The final part of this discussion addresses this issue in relation to the commercial organization of sedentary slave merchants.

4. Sedentary Slave Merchants: Persistent Coalitions

Leo Africanus' portrayal of the splendour he witnessed in sixteenth-century Timbuktu, at the time the most important southern *entrepôt* for the trans-Saharan trade, contains a striking observation: 'The inhabitants, & especially strangers there residing, are exceedingly rich, insomuch that the king that now [1526] is, married both his daughters unto two rich merchants.'[96] In this passage Leo describes exceptionally wealthy, non-native resident merchants. These men were the manifestation of a thriving trading diaspora. The success of Maghribi merchants in diaspora was testament to the asymmetric relationship between the economies north and south of the Sahara, most clearly reflected in the exchange of Sudanese human capital for Mediterranean manufactured goods.[97] It was also an expression of the superiority of diaspora organization in developing strategies and institutions to resolve a series of problems inherent to pre-industrial long-distance trade. Among these were regular communication, the creation and maintenance of bonds of trust (not least for the provision of credit), and a system of adjudicating business

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239. Even within a single decade accounts vary from ⅔ of a slave to 25 slaves for 'a good horse'.

[96] Leo Africanus, *op. cit.*, vol. III, p.824.

[97] *Cf.* R.A. Austen, *African Economic History*, pp.40f. Austen goes on to argue that 'unlike similar relationships elsewhere in Africa, the development of the Saharan trading system over time resulted in a narrowing rather than widening of the economic gap between its own poles' due to the limitations placed upon Mediterranean penetration of the Sudan and the importance of local and regional trade.

disputes backed by a credible authority structure.[98] This chapter translates the findings on the economic organization of caravans into the broader patterns of commerce that defined the trans-Saharan slave trade. In so doing, it is demonstrated that similar pressures resulted in comparable outcomes: the cooperative behaviour of partnerships and coalitions was necessary to overcome principal-agent problems. This was achieved through *(a)* the institutions of trading diasporas; *(b)* the use of brokers and slave agents; and *(c)* reputation mechanisms that allowed for the mobilization of capital and credit.

(a) Trading Diasporas

Abner Cohen first described spatially dispersed, but otherwise integrated trading communities, as diasporas.[99] This concept has since been applied to a number of historical case studies.[100] These show that under conditions of imperfect contract enforcement and fragmented political authority, the trading diaspora 'remained the most efficient way of organizing commerce across much of Afro-Eurasia until the nineteenth century'.[101] This efficiency was largely due to its solution for principal-agent problems through a combination of cultural and economic strategies. Cohen emphasises the former by describing a diaspora as 'a moral community which constrains the behaviour of the individual and ensures a large measure of conformity with common values and principles.'[102] Hopkins, on the other hand, stresses the diaspora's

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[98] A. Cohen, 'Cultural strategies in the organization of trading diasporas', in C. Meillassoux (ed.), *The Development of Indigenous Trade and Markets in West Africa* (Oxford: Oxford University Press, 1971), p.266.
[99] For his original definition see Cohen, *op. cit*., p.267.
[100] For a number of case studies see, for instance, P.D. Curtin, *Cross-Cultural Trade*, *passim*.
[101] K. Pomeranz and S. Topik, *The World That Trade Created: Society, Culture, and the World Economy, 1400–the Present* (Armonk, NY, London: M.E. Sharpe, 1999), p.7.
[102] A. Cohen, *op. cit.*, p.267.

economic organization, which was characterized not by direct control over production (in this case raiding), but by a degree of horizontal integration using agents to staff a network of branches along trade routes.[103] Shabeeny describes such a business model, in which merchants residing at Timbuktu have agents or correspondents in other countries and, in turn, themselves act as agents.[104]

While distinct from their host communities and dispersed across distant commercial centres, merchants in diaspora maintained their unity through the shared bond of Islam. 'The practice of pilgrimage to Mecca and the Islamic educational system were the key institutions which prevented isolated communities from being assimilated into non-Muslim states and societies.'[105] Islam promoted literacy and adherence to a shared legal system (شرعة, *shari'a*) essential to the provision of credit. It carried with it a profound commercial legacy of acceptable practice, a system of weights and measures, and recognized arbitration procedures.[106] And while it did not provide a formal pattern for the organization of trade, it did afford certain business models such as proprietary partnerships (شركاتالملك, *sharikāt al-milk*) and contractual partnerships (شركاتالعقد, *sharikāt al-'aqd*).[107] These were designed to take advantage of economies of scale in commercial services. Moreover, Islam accommodated the Arabic practice of slavery and institutionalized it

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[103] A.G. Hopkins, *op. cit.*, p.61.
[104] Shabeeny, *op. cit.*, p.22.
[105] P.E. Lovejoy, *Caravans of Kola*, p.39.
[106] *Cf.* P.E. Lovejoy, *Transformations in Slavery: A History of Slavery in Africa* (Cambridge: Cambridge University Press, 2nd edn., 2000), p.93.
[107] For partnership models see J.L. Abu-Lughod, *Before European Hegemony: The World System A.D. 1250–1350* (Oxford: Oxford University Press, 1989), pp.218f.; M. Rodinson, *Islam and Capitalism*, trans. B. Pearce (London: Allen Lane, 1974), ch.3.; A.L. Udovitch, *Partnership and Profit in Medieval Islam* (Princeton: Princeton University Press, 1970), ch.2.

as a means of converting perceived heathens.[108] Islamic teaching provided guidelines for the treatment of slaves, manumission, and their assimilation into the master's kinship group; hence young women, who could be integrated most readily, constituted the majority of slaves traded across the Sahara throughout the period.[109]

Markets are, of course, not only locations where goods and services are traded but also a place 'where identities could be negotiated, where moral values could be contested, where ideas could be exchanged.'[110] Caravans across the Sahara carried 'both the message of the Prophet along with Mediterranean and European wares in exchange for gold and slaves.'[111] It is thus not surprising that the earliest converts were nomadic tribes, the most practiced and persistent slave traders.[112] On the southern desert edge, it was the politico-commercial classes who professed to Islam first and, as a result, entered more readily into relationships of trust with Muslim traders. The interaction of these groups generated over time a world of shared practices and assumptions that facilitated the trans-Saharan slave trade.

> For all these groups, ethno-economic segmentation was counterbalanced by the trans-ethnic occupational and religious identity provided by Islam, which both facilitated cooperation and reinforced their specialized occupational role.[113]

Whilst the minority religion of the commercial class polarized between insiders and outsiders, sects and brotherhoods within the

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[108] B. Lewis, *Race and Slavery in the Middle East: An Historical Enquiry* (Oxford: Oxford University Press, 1990), ch.1.
[109] P.E. Lovejoy, *Transformations in Slavery*, pp.15-18.
[110] D.P. Gutelius, 'Research Notes: Market Growth and Social Change in the Western Maghrib, 1640–1830', *Saharan Studies Association Newsletter*, 5, 1 (1997), p.9.
[111] M. Gordon, *op. cit.*, p.131.
[112] See, for instance, H.T. Norris, *The Arab Conquest of the Western Sahara* (Beirut: Libraire du Liban, 1986).
[113] K.P. Moseley, 'Caravel and Caravan: West Africa and the World-Economies, ca. 900-1900 AD', *Review*, XV, 3 (1992), pp.531f.

Muslim community served 'as an exclusive possession of a particular ethnic or commercial group, helping to further its sense of internal solidarity'.[114] Future research by Islamicists may enable economic historians to decide whether these subdivisions were influenced by the desire to raise the efficiency of reputation mechanisms.

(b) Representatives and Brokers

The chief function of the members of a trading diaspora resident in foreign markets was to represent the business interests of their partnerships and to act as brokers for itinerant traders. The *Geniza* documents show that in the twelfth century such agents received between 2 and 7 per cent commission.[115] For the trans-Saharan trade with its lower frequency, higher entry costs, and thinner markets, it is likely that brokerage fees were in excess of these levels. It is known that these representatives were often stakeholders through familial or diaspora relations. In the fourteenth century, Ibn al-Khatīb recorded an account by Abū 'Abd Allāh Muhammad al-Maqqarī of Tlemcen in northwestern Algeria, whose ancestors established a familial partnership with branches in Tlemcen, the Saharan oasis of Sijilmasa, and Walata in the southern Sahel.

> The Sijilmāsī was like the tongue of a balance, indicating to them the extent of rise or fall in the markets and writing to them about the affairs of merchants and countries and so their wealth expanded and their status grew.[116]

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[114] P.D. Curtin, *Cross-Cultural Trade*, p.49. Also see D.P. Gutelius, 'The Path is Easy and the Benefits Large: The Nāsiriyya, Social Networks and Economic Change in Morocco, 1640–1830', *Journal of African History*, 43 (2002), pp.27-49
[115] Goitein, *op. cit.*, pp183-186.
[116] Ibn al-Khatīb, 'Al-Ihāta fī tārīkh Gharnāta [The Encompassment, on the History of Granada]', trans. J.F.P. Hopkins, in N. Levtzion, J.F.P. Hopkins (eds.), *Corpus of early Arabic Sources for West African History* (Cambridge: Cambridge University Press, 1981), p.307.

The competitive advantage of having reliable information at comparatively low cost enjoyed by these dispersed enterprises was of particular significance in the trans-Saharan trade with its far-flung markets. Barth suggests that the major markets were in regular contact and, to an extent, integrated, although the infrequency of caravans allowed for arbitrage profits.[117] The slave trade was particularly exposed to price fluctuations on the supply side, as most slaves were captured during the annual warring season, and sellers had incentives to dispose of their slaves swiftly. Griga recounts how buyers in the slave market of Timimoun would use the cost of feeding slaves, which within the desert was considerable, as leverage in negotiations: 'No buyer came that day, hoping that it would lower [the slave trader's] prices, since he had to feed these slaves and it constituted a heavy burden.'[118]

While partnerships were able to draw on the whole range of services proffered by their representatives, ranging from legal representation to the monitoring of other agents, it was also possible for traders from outside the partnership to access the most essential services: protection, storage, and brokerage. Shabeeny relates how foreign traders were able to lodge and deposit their goods in the *funduq* (فندق), a specialized residence with attached warehouses, of a resident merchant.[119] Ibn Battūta describes how, prior to their arrival in Walata, the traders of his caravan made arrangements with resident merchants of their partnerships or coalitions, and how traders without such a connection were able to procure their services.

> *Takshīf* is the name given to any man of the Massūfa [Tuat Berbers] whom the people of the caravan hire to go ahead of

[117] H. Barth, *op. cit.*, vol. I, pp.522ff.
[118] F.J.G. Mercadier, *op. cit.*, unpaginated.
[119] Shabeeny, *op. cit.*, pp.10f.; for a recent study of the institutional development of the *funduq* see O.R. Constable, *Housing the Stranger in the Mediterranean World: Lodging, Trade, and Travel in Late Antiquity and the Middle Ages* (Cambridge: Cambridge University Press, 2003), ch.2-3.

> them to Īwālātan [Walata] with letters from them to their friends there asking them to let houses to them and come four days' journey to meet them with water. Anyone who has no friend in Īwālātan writes to a merchant there known for his benevolent character who then enters into the same relationship with him.[120]

The operators of *funduqs*, in a West African context usually described as landlord-brokers, provided physical security for itinerant traders and mediated between them and local authorities. Curtin describes how resident brokers were able to make credible assurances of the traders' good conduct, as the broker would remain after the caravan had departed.[121] Similarly, the caravan's *amīr* had an incentive to ensure the commercial probity of the moving traders: while the latter might never return to a particular market, specialized caravan leaders were likely to operate on the same route season after season.

Trading diasporas highlight the advantages of shared ethnicity and creed in ensuring the cooperation of its agents. However, history also abounds with instances of rulers deliberately surrounding themselves with foreigners out of distrust of their own people and their ambitions. Muslim potentates in particular, allowed slaves, captured on the Islamic frontiers and purchased at a young age, to rise to positions of great responsibility and influence. Out of this constellation arose the 'ultimate paradox' of slave kings who ruled in Cairo (Mamluks, 1250–1517), Delhi (Slave Dynasty, 1206–1290), and elsewhere.[122] According to Goitein, a similar situation on a smaller scale was reflected in the life of the Maghribi bourgeoisie, with the slaves of rulers constituting a prototype for the use of slave agents by the middle class.

[120] Ibn Battuta, *op. cit.*, vol. IV, p.948.
[121] P.D. Curtin, *Cross-Cultural Trade*, p.55.
[122] B. Lewis, *op. cit.*, p.64. For a comprehensive study of the origins of the use of slave soldiers in Muslim societies see D. Pipes, *Slave Soldiers and Islam. The Genesis of a Military System* (New Haven, London: Yale University Press, 1981).

> The acquisition of a male slave was a great affair, on which a man was congratulated almost as if a son had been born to him. No wonder, for a slave fulfilled tasks similar to those of a son. He managed the affairs of his master, he travelled with him or for him, or he was in charge of his master's business, when the latter himself was out of town.[123]

The *Geniza* documents further reveal that the movements of a slave agent would be reported in the same way as that of other important merchants, and that business letters were often addressed to both.[124] Correspondingly, almost all the sources consulted for the trans-Saharan slave trade refer to slaves acting as business agents for their masters. Shabeeny relates how itinerant traders after trading their goods for gold-dust would immediately send it off with their slave agents.[125] This confidence in the honesty of slave agents also struck Nachtigal, who notes that masters use their slaves without scruple ('ohne Bedenken') for trading missions even to their native lands.[126] This peculiar form of principal-agent relation between master and slave prompts the question of how the fundamental problem of exchange was overcome between such disparate actors. The surveyed literature does not engage with this problem. Studies of the principal-agent problem in European colonial companies found that economic incentives played a crucial role in ensuring the good conduct of overseas agents. Consequently, it is sensible to test whether specific incentives induced slave agents to remain loyal to their principals rather than escape to freedom with or without their masters' funds.

It is important to note that slaves acting as agents are over-represented in the sources, firstly because they were more likely to be

[123] Goitein, *op. cit.*, p.132.
[124] *Ibid.*, p.132.
[125] Shabeeny, *op. cit.*, p.22. This practice is confirmed for early nineteenth-century Timbuktu by Réné Caillié; R. Caillié, *op. cit.*, vol. I, p.457.
[126] G. Nachtigal, *op. cit.*, vol. I, p.133.

visible to and interact with outsiders than other slaves, and secondly, because European observers were intrigued by their elevated social status compared to that of slaves used by European companies and expatriates. Plantation slavery was rare in the Islamic world, and the vast majority of slaves in Muslim societies were directed to the service sector – in occupations ranging from domestic help to porters, soldiers, and concubines – rather than production.[127] Slaves employed as agents usually came into their masters' service at a particularly young age and received a methodical education in Islamic norms as well as business practice. Yāqūt b. 'Abd Allāh al-Hamawī al-Rūmī is a well-documented example of this. Of Greek origin, he was captured in the late twelfth century and sold to a Syrian merchant residing in Baghdad. Yāqūt received a good education and was later sent to trade on his master's behalf. He was freed at the age of twenty, possibly at his master's death, and continued to travel across the Middle East.[128]

Slave agents, therefore, occupied a privileged position within the spectrum of slave occupations and could expect treatment according to their station. Furthermore, in caravans and *funduqs* they were able to make important business contacts and often had the opportunity to trade on their own behalf. Humphrey Fisher suggests that not only slave agents, but also slaves employed as caravan workers 'often combined private trade, and even private trade in slaves, with their group responsibilities.'[129] This assessment is supported by Richardson, who

[127] R. Segal, *Islam's Black Slaves: A History of Africa's Other Black Diaspora* (London: Atlantic Books, 2002), p.4. For an instance of Muslim plantation slavery see F. Cooper, *Plantation Slavery on the East Coast of Africa* (New Haven, London: Yale University Press, 1977).
[128] See Levtzion's introduction to Yāqūt, 'Mu'jam al-buldān [The Dictionary of Countries]', trans. J.F.P. Hopkins, in N. Levtzion, J.F.P. Hopkins (eds.), *Corpus of early Arabic Sources for West African History* (Cambridge: Cambridge University Press, 1981), p.167.
[129] H.J. Fisher, *op. cit.*, p.226.

while at Ghadames encountered a slave trading 'as if a regular free merchant' who told him that he was selling 'few slaves, and mostly goods'.[130]

Hence, slave agents were not only privileged compared to slaves but also enjoyed, if their master was an important merchant, greater economic opportunities than many free men. Furthermore, the institutionalized practice of manumission meant that they could expect to use the knowledge and contacts they had acquired to trade on their own account. It is, perhaps, not surprising that under such conditions, many slave agents maintained a commercial bond with their former owners, transposing the master-slave relationship into one between patron and client. J.G. Jackson, writing in the early nineteenth century, marvelled at an instance of this in his footnote to Shabeeny's narrative:

> I have known instances of a slave being liberated after a few years of servitude; and his master's confidence has been such that he had advanced him money to trade with, and has allowed him to cross the desert to Timbuctoo, waiting for repayment of his money till his return. This is often the treatment of Muhamadans to slaves! how different from that practiced by the Planters in the West India Islands!![131]

Still, Leo Africanus relates how on some occasions the slave agent's economic incentives to cooperate were outweighed by the benefits of opportunism. He describes how a member of the royal family of Kanem was held as a slave in the adjacent kingdom of Gaoga.

> This slaue lying upon a certaine night with his master that was a wealthie merchant, & considering that he was not far from his natiue countrey, slue his saide master, possessed his goods, and returned home […].[132]

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[130] J. Richardson, *Travels in the Great Desert of Sahara, in 1845 and 1846; including a description of the oases and cities of Ghat, Ghadames and Mourzuk*, 2 vols. (London: Bentley, 1848), vol. I, p.188; *cf.* Fisher, *op. cit.*, p.225.
[131] In Shabeeny, *op. cit.*, p.18 fn.
[132] Leo Africanus, *op. cit.*, vol. III, p.835.

He then used his booty to purchase horses, embarked on slave raids into Gaoga, exchanged his captives for more horses, and at length subdued the kingdom by installing himself as sovereign.

(c) Credit and Finance

Commercial partnerships and coalitions sustained reputation mechanisms through the credible threat of exclusion from future transactions in what was a closely interconnected network with a limited number of *entrepôts*. This economic institution acted in addition to, but independently of, social institutions. While the merchant enjoyed a high social prestige in Islam, it was also acknowledged that his profession required a special type of cooperative behaviour as expressed in a saying attributed to Caliph Umar: 'Trading is the true test of a man where his worth becomes known.'[133] This sentiment was, of course, not unique to Islam: Baudelaire's well-known aphorism that to the merchant even honesty is a financial calculation can be read as a more cynical expression of the same reality.

A central function of the reputation mechanism, in addition to facilitating commercial contracts *per se*, was to provide an institutional framework for credit and finance arrangements without which the long-distance trade in slaves could not have operated. Credit was frequently used between different traders and between traders and suppliers. Leo's account provides a fascinating description of a credit arrangement between trans-Saharan slave traders and the king of Borno in the early sixteenth century. Desiring horses for his cavalry, the king offered fifteen to twenty slaves per horse but only set out to obtain them after taking possession of the horses. His creditors, who had sold him those horses,

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[133] As cited in E.W. Bovill, *The Golden Trade of the Moors* (London: Oxford University Press, 2nd edn., 1968), p.236.

were maintained at his palace at his expense, but had to wait for up to three months before the king returned from his campaigns, conducted presumably with his newly acquired horses. If the merchants were not satisfied with the captured slaves, they might have to wait for up to a year for further campaigns, with consequentially high opportunity costs.

> Yea I my selfe met with sundrie merchants heere, who despairing of the kings paiment, bicause they had trusted him an whole yeere, determined neuer to come thither with horses againe. […] Howbeit this king is extreamely couetous for he had much rather pay his debts in slaues than in gold.[134]

R.S. O'Fahey identified similar credit systems in Dar Fur, where traders advanced goods to slave raiders and transactions were confirmed in writing.[135] These traders were almost certainly part of the trans-Saharan network, as is suggested by the large credit (up to six hundred slaves' worth) they were able to advance. The wealth of these traders is also suggested by a tenth-century source: Ibn Hawqal describes a bill of credit between business partners in two of the trans-Saharan termini, Sijilmasa and Awdaghost, issued for the immense sum of 42,000 dinars.[136]

Shabeeny, with the knowledge of an insider, describes the provision of credit in the form of slaves and gold-dust as the principal source of wealth of sedentary merchants.[137] He adds that such transactions were often private and characterized by high interest repayable in goods.[138] The repayment of loans in different currencies than originally borrowed, was a widely employed method of circumventing the

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[134] Leo Africanus, *op. cit.*, vol. III, p.834
[135] R.S. O'Fahey, 'Slavery and the Slave Trade in Dār Fūr', *Journal of African History*, 14, 1 (1973), p.33.
[136] Levtzion convincingly argues that Ibn Hawqal did not see the cheque in Awdaghost, as he claimed, but in Sijilmasa; N. Levtzion, *op. cit.*, pp.222-227.
[137] Shabeeny, *op. cit.*, p.22.
[138] *Ibid*., p.22.

Islamic proscription of usury, and is known as *mudā'af* (مضاعف, literally multiplied).[139] Fisher suggests that traders with a steady supply of slaves were better credit risks and able to obtain loans at lower rates of interest.[140]

As the majority of transactions were conducted on a credit basis, the distinction between the provision of credit for a trader's enterprise and a direct investment in it is ambiguous. While the merchants of Shabeeny's account specialized in loans, others appear to have used their command over capital to participate in ventures as investors or stakeholders. The latter form often reflected an imbalance of economic power between the parties, typically with sedentary merchants investing into the commerce of itinerant traders. The Tuareg in particular displayed a complete disregard of ethnic boundaries in such investments and turned their transport monopoly into a source of capital for the entire region.[141] After having lost their capital in an unsuccessful venture, the slave trader Sidi Hamet was forced to accept the investment of a Saharan sheikh; tantalizingly it is not described whether his reluctance to act on behalf of the sheikh was due to unfavourable conditions of the contract or to a perceived loss of social prestige.[142]

Similar power relations can be identified for the wider pattern of the trans-Saharan trade, with the largest shares of the profit accruing to Maghribi merchants for the provision of credit and sophisticated commercial services and, to a lesser degree, the Saharan tribes who controlled the routes and transport livestock. While the latter invested in the commerce, its organization remained in the hands of North Africans with their superior knowledge of market conditions and better financial

[139] J.L.A. Webb, Jr., *Desert Frontier*, p.63.
[140] H.J. Fisher, *op. cit.*, pp.316ff.
[141] S. Baier and P.E. Lovejoy, *op. cit.*, p.396.
[142] Cpt. Riley, *op. cit.*, p.292.

connections.[143] 'All evidence indicates that the profit earned by […] Sudanic merchants was far below that realized by trans-Saharan traders and it was the latter who controlled the relationship by means of credit advances.'[144] As seen above, the use of trading diasporas meant that interests and allegiances of merchants were with the northern trading houses, and not with local elites. The legacy of this imbalance can be observed in the Sudan in the many important merchants of North African descent.[145]

Even during periods of increased demand within both the Atlantic and the trans-Saharan trades, the suppliers were not able to raise their share of the trade's economic benefits. This is explained by the nature of slave acquisition. Enslavement occurred mostly as a result of wars and raids, so that the suppliers stood in constant competition over what was essentially an open-access resource. In addition, armed caravans always had the option of conducting their own slave *razzia*, if its cost fell below the expense of purchasing slaves.

Conclusions

This paper presented the unique conditions that defined the organization of the trans-Saharan slave trade. Itinerant traders formed caravans for protection and imposed their economic power as cartels on the suppliers of slaves. They encouraged cooperation within the caravan through a mixture of social and economic institutions. The latter were analysed using game-theoretical models, especially Prisoners' Dilemmas. Protection payments by caravans to Saharan tribes were also analysed

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[143] *Cf.* P.E. Lovejoy and S. Baier, *op. cit.*, p.558.
[144] R.A. Austen, *African Economic History*, p.42.
[145] P.E. Lovejoy and S. Baier, *op. cit.*, p.567. Caillié corroborates this for Jenne in Songhay, the principal trade of which he describes as being controlled by resident Moorish merchants and their partnership companies; R. Caillié, *op. cit.*, vol. I, p.458.

along these lines. The tribes as well as the traders operated in a competitive environment that prevented permanent monopolies.

Partnerships between sedentary merchants also faced a series of Prisoners' Dilemmas, usually between Maghribi principals and their agents in Saharan and Sahelian markets. The development of institutions to overcome these was a prerequisite to the slave trade on the scale that it operated on throughout the period. This paper focussed on the function of trading diasporas in resolving principal-agent problems and the ways in which representatives, brokers, and slave agents facilitated commercial exchange. Finally, it was examined how these structures enabled Maghribi merchants to control the trade via the provision of capital and credit.

The need of principals to ensure their agents' cooperation has been identified as the fundamental problem of exchange. The development of strategies and institutions to overcome this problem was crucial to the trade across the Sahara. Social institutions of kin, tribe, and religion and economic institutions of partnerships and coalitions combined to create a superstructure conducive to cooperation. To return to the opening metaphor, the background of social institutions that made cooperation possible can be likened to the 'trust in God', while the economic institutions that made it predictable and enforceable to 'tying your camel'.

The longevity of the trans-Saharan slave trade is evidence of the high degree of flexibility and adaptability these structures allowed for. However, the absence of large corporations, found in other parts of the Islamic world and especially in the European overseas trade, suggests that just as caravans had reached their efficiency ceiling early on, so the overall organization of the trade had reached its limit. It could not expand further without a system of external contract enforcement. The unchallengeable position of desert tribes and the political fragmentation of the whole region prevented the development of such formal institutions.

Future research may further elucidate this issue by examining the interplay between private-order institutions and the various formal institutions that impinged on the trade in different places at different times.

In his comparison of long-distance trade in medieval Europe and Africa, Oliver Pétré-Grenouilleau laments that most of the existing literature focuses ‘more on the structures of African merchant capitalism than on the actors’.[146] The focus on the microeconomic foundations of the trans-Saharan slave trade that guided this study has demonstrated that it is rewardingly analysed assuming individual utility-maximising behaviour. In this way it has been shown, that the trade was not restricted by social institutions as the traditional Substantivist interpretation claims, but versatile in adapting its economic institutions from native practices and Islamic commercial paradigms to best suit the unique requirements of trading an ever-growing number of slaves across the vast Saharan desert. The application of institutional economics and game theory has confirmed this economic rationality, and demonstrated that the behaviour of its actors can be analysed in terms of cooperative and non-cooperative strategies. It is therefore more useful in explaining the economic behaviour of those involved in the trade than conventional neoclassical economics.

[146] O. Pétré-Grenouilleau, *op. cit.*, p.170 fn.

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