

KNOWING ME, KNOWING YOU:

Social networks in the surgical instrument cluster of Sialkot, Pakistan

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Abstract

The paradox in the industrial district model is understanding how the divergent tendencies of local competition and cooperation are mediated. Social networks are said to provide mechanisms that regulate inter-firm relations and facilitate the flow of knowledge within the confines of the district. Empirical evidence of this, particularly from the South, is limited. This paper draws on the case of the export-oriented surgical instrument cluster of Sialkot in Pakistan. It shows how social networks, based on kinship, family and localness, influence production relations, and how the impact of these interlinked local social networks have changed over time. The economic and social reputation that comes from being local is central to vertical and horizontal inter-firm relations within the cluster. Building social and economic ties with external agents is, however, also becoming important, especially to acquire the technical know-how necessary to remain competitive in global markets.

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1 Introduction

Industrial districts attract attention for their potential to generate agglomeration economies and encourage local collective action. These gains of clustering, captured by Schmitz (1995b) in the concept of collective efficiency, are put forward as being critical to the competitiveness of small and medium enterprise (SME) in both the North and the South (Schmitz 1992; Sengenberger and Pyke 1991). The paradox in this model of industrial organisation has been understanding how the divergent tendencies of local competition and cooperation are mediated. The dominant view is that economic relations are, to use Granovetter's (1985) terms, 'socially embedded'. Thus, Becattini describes an industrial district as 'a socio-territorial entity ...[where]... community and firms tend to merge' (Becattini 1990: 38). Social ties between local agents are said to provide the basis for trust in economic relations (Dei Otatti 1994; Humphrey and Schmitz 1996). In addition, social capital, reflected in local civic traditions and community norms, is said to facilitate cooperative behaviour (Bazan and Schmitz 1997; Putnam 1993). This emphasis on trust, social capital and the overall social milieu has been a core and recurrent theme in the contemporary literature on industrial districts.² However, empirical evidence on how such factors influence economic behaviour within industrial clusters and districts in the developing world remains limited.

In part this is because the concepts of trust and social capital have proven difficult to unpackage, and even more difficult to empirically capture (Humphrey and Schmitz 1996; Putnam 1993; Zucker 1986). Clearly, they are not identical. As Zucker (1986) shows, trust ties can exist between actors who are socially unrelated to each other. Similarly, social capital does not necessarily imply bonds of trust. The key issue is understanding how local cooperation takes place, and, whether social ties, and the networks they engender, help explain how cooperative behaviour is brought about and how it develops. Whether such social ties result in trust within the district, and if so how they function, become subjects for empirical study.

This paper, using evidence from Pakistan, shows how social networks can influence, and be changed by, the workings of an industrial district. The stainless steel surgical instruments industry of Sialkot is not only a global player in its niche sector, it is also marked by a thick web of social ties through which most local firms are related. The industry is made up of some 300, mainly small and medium sized, producers. These are supported by over 1,500 specialised subcontractors and a further 1,000 odd suppliers and ancillary service units. This cluster of local producers is estimated to account for some 20 per cent of world exports, making it the second largest exporter, after Germany, of stainless steel surgical instruments (Nadvi 1996). Elsewhere I have discussed how this cluster has managed to

² See, for example, Lorenz 1988; Harrison 1992; Sabel 1992; Grabher 1993; Dei Otatti 1994; Scott 1995; Humphrey and Schmitz 1996.

grow and compete in global markets (Nadvi 1997). Here, I explore how local social ties impact on economic relations within the cluster.

According to one local entrepreneur social ties are unimportant. Instead, 'in this business it is everyone for themselves' (M. Moeed 13 February 1994).³ Another manufacturer, a second cousin and brother-in-law of the first, seconds this view, observing that in Sialkot 'business is business and family is family' (M. Sami 22 February 1994). These views, while capturing the intense local rivalry, are, however, puzzling. Most firms are family-run enterprises. Many entrepreneurs are related, either directly or through marriage, to each other. A large number of producers trace their family history in this activity back at least three generations. Most have grown up with each other in the town, played in the same streets and studied at the same local schools and colleges. Everyone knows everyone else in Sialkot. Knowing, and being known by, others is important to the survival and prosperity of local firms and ancillary units. Hence the paper's title. Knowing each other has both social and economic functions, providing access to reputational information and channels for the flow of various types of knowledge. With such a thick web of locally embedded social relationships how then can it be said that 'in business it is everyone for themselves'? This remark masks a more complicated reality, one in which local rivalry sits side-by-side and is intermeshed with close social ties.

Social networks can have an important impact on the workings of local firms. They can provide a basis for regulating inter-firm relations, thereby mediating local competition and cooperation, and facilitate the historical sedimentation of 'tacit', sector-specific, knowledge. It has to be remembered, however, that social networks are not set in stone. They change with time, both in their characteristics and their influence. In the context of industrial districts, it has been argued that the basis of trust shifts from being socially 'ascribed' to being 'earned' in business (Schmitz, 1995a).⁴ Sociologists refer to this process by contrasting the notion of *Gemeinschaft* (community) with *Gesellschaft* (society).⁵ The former refers to a social solidarity built upon affective ties as part of a common kinship group or community identity. The latter suggests a solidarity group 'based upon a division of labour and contractual relations between isolated individuals consulting their own individual self-interests' (Bullock *et al.* 1988: 348).

My proposition is that Sialkot's surgical instrument cluster draws strength from being embedded in local social networks. In evaluating this proposition, further questions are raised. What are the dominant forms of local social ties? How do social networks influence inter-firm relations? And, finally, how are social networks changing as the cluster itself evolves? With respect to change, I

³ To respect confidentiality, names of all firms and respondents have been changed.

⁴ Marshall (1919:164-5) also talks of this. According to him as communities grew in size, 'trust became less habitual and instinctive. In other words life became in some degree "business like"'.
⁵ This distinction was first developed by Tönnies in 1887 (cited in Loomis and Beagle 1957).

argue that the binary notions of *gemeinschaft-gesellschaft* do not fully capture Sialkot's reality. While network ties are changing, I argue that the influence of local social identities remain important and continue to exert an influence on the workings of Sialkot's surgical instruments sector. Nevertheless, as Barr (1996) has observed, networks that serve to regulate contracts may not be as effective in facilitating information flows. Thus, as the sector develops, so the functional demands placed upon local social networks, and therefore the patterns of dominant social linkages, alter.

The next section discusses how social networks can influence productive behaviour within the industrial district setting. Section 3 provides an introduction to Sialkot's surgical instruments industry. Section 4 identifies, and locates, the key categories of social identity in Sialkot. Section 5 uses primary data to explore how social networks influence inter-firm relations. The concluding section considers how social networks are changing as production relations in the Sialkot cluster develop.

2 Social ties and networks: cooperation, trust and embeddedness in industrial districts

Inter-firm cooperation, at both vertical and horizontal levels, is central to production organisation within the industrial district. Specialised division of labour facilitates vertical subcontracting, while firms can also collaborate bilaterally (through, for example, consortia) and multilaterally (through trade associations). Such vertical and horizontal cooperation generates significant potential benefits to local producers. It also requires, as Richardson (1972: 895) notes, a 'distinct method of co-ordination.' This can either be through the market; via a set of authority relations, such as Ouchi's (1980) treatment of the concept of clans; or involve a more 'egalitarian' basis of co-ordination. If the last option is pursued, mechanisms for building confidence between agents become necessary to offset the threat of the transaction costs arising from insufficient information, the fear of adverse selection, moral hazards and opportunistic behaviour.

Confidence can develop when agents engage in long-term and recurring contracts and become familiar with each other. Networks offer an organisational form, distinct from Williamson's construct of markets and the integrated firm, where opportunism can be mitigated. At the heart of network relations is interdependency, with long-term, reciprocal, and mutually supportive relationships (Powell 1990). This requires a high degree of 'mutual orientation' between networked agents (Johanson and Mattson 1987: 39). Interdependence also implies that the threat of opportunism is diminished by the sanction of reciprocity. The fact that contracts are recurring, and long-term, provides insurance against 'malfeasance'. The reputation of each party is continuously and consistently at stake in each transaction with other agents in the network.

Goodwill, reciprocity, and reputation are the basis on which long-term interdependent ties are built, and the grounds on which trust takes shape between cooperating parties within a network. However,

acquiring mutual knowledge and building reputation takes time. Network ties that are grounded in existing social relationships, wherein economic reputation is socially influenced, minimise such costs.⁶ In long-term contracts, trust and reputation effects are constructed on ties that are economic and business-like as well as personalised and social. Economic agents are individuals who are also connected through social ties. The importance of the social embeddedness approach is that it provides a basis for addressing how cooperation can be achieved, and the fear of opportunism minimised by local agents. Socio-cultural identities and characteristics influence, and are influenced by, intra and inter-firm relations within the cluster. Production networks in industrial districts are embedded in local social networks that carry with them various forms of social capital (Grabher 1993). These include socialised value sets, rules and mores which directly and indirectly influence the way in which production organisation within the district is organised, and socially constructed technical and community knowledge banks which can affect how the district develops.

The embeddedness approach does not, however, imply social or cultural determinism. Social ties and social norms are not fixed in time. Quite the opposite, they are evolving processes. Constantly and consistently being shaped by economic and technical developments upon which they are themselves acting (Granovetter 1992: 57). At the same time socio-cultural value sets do not necessarily act in a predictable or homogeneous fashion on all segments of the cluster. They can legitimise exploitative practices, hinder cooperation between different segments of a cluster, and reinforce existing power asymmetries.⁷ By acting as barriers to entry of outsiders, social networks can also intensify prevalent social and regional inequities. If the cluster is not sufficiently large, restricting outsiders can also potentially limit cluster growth by limiting the pool of skills and capital that could be drawn upon. Finally, local social values and historically sedimented traditional technical knowledge can hinder and restrict the spread of new ideas from the outside. Thus, an inward-looking and homogeneous culture can make local agents more vulnerable to exogenous pressures, and ‘strongly embedded regional networks [can] insidiously turn from ties that bind to ties that blind’ (Grabher 1993: 24).

In the industrial districts literature, social ties are multiple and varied. They form around notions of family, caste, ethnic, racial, religious, educational, political or corporate backgrounds. In the industrial districts of northeastern Italy, the family, the church and local political affiliations are said to provide a basis for social ties (Becattini 1990; Trigilia 1990). Where they have been observed in the South, notions of community shaped by religion, ethnicity, language, occupational caste or regional

⁶ The classic example is the gem trade, where community, ethnic, religious and family ties often provide the key mechanisms to minimise security costs and the threat of opportunistic behaviour (see Ben-Porath 1980; Coleman 1988; Raub and Weesie 1991, Scott 1995).

⁷ Knorringa (1995) describes how religiously sanctioned caste prejudices restrict technical exchanges between tanners, shoemakers, and market agents in Agra's shoe cluster. Smyth and Kapadia (1995) show, in the context of clusters, how social norms can reinforce gender exploitation.

background have tended to be the primary form of local social identity.⁸ However, there is also evidence of more 'modern' social networks, based on shared educational or business experience (Cho 1992; Holmström 1993, 1994; Schmitz 1995a).

Thus, what we know from the existing literature is that social embeddedness can influence the workings of a district and its institutional framework in three ways. First, through the 'sedimentation of specific and interrelated historical, social and cultural factors in local areas which generate significantly different processes of development directly due to local specifications' (Garofoli 1992: 3). This includes local religious and/or cultural attitudes that influence the the dominant work ethos, and support intra and inter-firm relations.

Second, through social ties and socialised production relations that lower transaction costs by providing a basis for trust, social reputation, and reciprocity in inter-firm relations. Being socially embedded within a community provides a basis for the social provisioning of market-related information, and generates an implicit code of behaviour, incorporating rules and sanctions, that regulate both social and production relations within the cluster. Hence, a regulatory mechanism for inter-firm relations emerges from within community and socio-cultural identities. Sanctions enforce the limits of socially accepted commercial behaviour within firms and between firms. The ultimate sanction implies social exclusion from the community.⁹ A less draconian, yet effective, sanction in business relations is loss of reputation. A reputation for honesty and fairness in business transactions is highly valued and is constructed over an extensive period of time. Such a reputation is also zealously guarded. Where the social and commercial 'exit costs' (*a la* Hirschman) incurred from breaking a commitment are sufficiently high, reputational effects can serve to reinforce inter-firm cooperation.

Third, through the social milieu which influences, and is itself influenced by, innovation and technological change. In the industrial district perspective, technology is endogenised, or related directly to the social fabric in which it is located. This has two important implications. First, clusters of small firms carry with them an element of 'tacit knowledge' regarding technology, skills, products and processes that is often specific to that community and usually accumulates over an extended historical period. Second, innovation and technical progress is an incremental and 'systemic' (as opposed to 'atomistic') process which builds upon interactions between users and producers (Lundvall 1988). Such interactive technical co-operation requires commonly accepted codes of behaviour, channels of information, and mutual trust (Lundvall 1988: 352-4).

⁸ See Nadvi and Schmitz 1994 for a review of the material on social ties in Southern industrial districts.

⁹ As Marshall (1919:164) stated 'business trust and confidence...were indeed enforced within each group by the social penalty of ostracism: an offender against his neighbours became an outcast, often without refuge.'

What we do not know, however, is the actual details of how social networks function in an industrial district context. Even though social embeddedness is much talked about, there are few empirical studies that document how social ties influence economic behaviour in industrial districts, and even fewer studies on the social networks of producers in the South who compete in the markets of the North. In trying to fill this gap, this paper seeks to understand how dominant social identities in the Sialkot cluster influence vertical and horizontal inter-firm relations. In particular, our concern is with how social networks reduce transaction costs and facilitate information and knowledge flows. And the paper explores how the dominant social identities within the cluster are themselves changing.

Before turning to the case study, a caveat has to be noted. Many of the social characteristics, community attributes, and moral codes that derive from social ties are not directly observable. Members of a community often internalise social identities and their associated properties without being consciously aware of it. Hence, discerning the role of social embeddedness is more difficult than the relatively perceptible patterns of inter-firm production relations.

3 Sialkot and its surgical instruments industry - A brief sketch

Sialkot's surgical instruments cluster has deep local roots. The 1895 District Gazetteer mentions metal forging and manufacture of metal utensils in the region. It particularly notes the skill of Sialkot's ironsmiths to produce high quality ornamental damascening and inlay work, and their ability to repair and manufacture 'large quantities of caskets, shields... swords, spear-heads, gurkha knives, razors, stirrups' to an excellent degree of workmanship.¹⁰ The transition to surgical instrument making came in the 1890s, as a consequence of the demand for repair, and subsequently manufacture, of surgical implements created by the presence of a local Mission hospital. The birth of the sector, including, the 'accidental' association between the hospital and local ironsmiths, was thus linked to the presence of specialist knowledge among local artisans of how to forge, fashion, shape and produce metal implements to a high degree of precision.

Once the transition to producing surgical instruments was made, there was a slow but systematic growth in the industry during the first quarter of the 20th century. From catering initially to the demand of local hospitals, Sialkot's fledgling surgical instrument producers had by 1920 expanded to supplying much of the Indian market and to make forays into regional exports (Pakistan Surgical Instruments Buyers Guide 1992-3, p.68). Two exogenous shocks in the 1940s significantly boosted the sector's growth. World War Two brought Sialkot into the war effort, becoming an important supplier of surgical instruments. Technology, design blueprints, drawings, know-how and technical

¹⁰ Cited in the Gazetteer of Sialkot District 1920, p.124-5, p127. Sialkot's reputation for metalworking, particularly weaponry manufacture dates to the early Mughal period.

experts were brought in from Britain, and a technical support institute set up in 1941 to assist local industry. The second shock came with the partitioning of British India and the independence of Pakistan in 1947. Despite the widescale communal violence and the chaotic process of building a new state, Partition generated new spaces for productive activity. It resulted in the exodus of the minority Hindu community from Sialkot. Although production was largely the preserve of Muslim artisans, the Hindu community played a key role as traders and financiers.¹¹ Their departure, while creating a vacuum, provided space for new opportunities for Muslim traders and artisans to step in.

Despite momentary setbacks, the cluster's growth has been rapid. Export revenues have risen nearly twenty fold in real terms since 1960 and currently exceed US\$ 125 million. Today, the cluster manufactures over 2,000 different types of stainless steel instruments used in all branches of medicine, surgery, dentistry, and veterinary work. Some instruments are custom-made and single purpose, others are differentiated by function, end users, size and metal composition. The bulk of exports go to the United States (59 per cent of total export volume) and the European Community (27 per cent). A significant proportion of these are further re-exported by foreign buyers under their own brand names. In addition, Sialkot's firms also undertake subcontractual tasks for foreign, particularly German, manufacturers.

At the core of the cluster are some 300 registered manufacturers, the vast majority of which employ less than twenty workers.¹² The ability to neatly 'dismember' production into separable process-specific stages, based on a clear demarcation of skills and technologies, allows for the presence of over 1500 specialised subcontractors. These undertake tasks such as die-making, forging, filing, polishing, grinding, machining, electroplating, and heat treatment. In addition, there are numerous local specialised suppliers of stainless steel, new and used machinery, chemicals, polishing belts, abrasives, grinding material, files, as well as marketing agents, service units and support institutions. Among export related support services there are over a hundred customs clearing agents as well as travel agents, insurance agents, cargo handlers, and international couriers. A few public and private sector institutions, including the trade association, a technology support centre, and a privately-run dry port also provide services to the cluster.

Sialkot presents a picture of sharp contrasts. Despite being the 'city of exporters' it has none of the attributes of an export centre. There is neither an airport nor an international standard hotel. Nevertheless, it is a relatively wealthy town. For example, wage rates exceed the national average, while local industrialists live in large marble fronted houses and drive the latest air-conditioned cars. Yet, such wealth is not reflected in Sialkot's civic amenities or social services. Thus, while Sialkot's

¹¹ For example, of the five registered surgical instrument firms in Sialkot at Partition, three were Hindu owned.

¹² Based on Surgical Instrument Manufacturers Association (SIMA) Membership lists; FBS, Census of Manufacturing Industries 1987-88, Census of Small and Household Manufacturing Industries 1988

skyline is dotted with satellite dishes, many of its congested neighbourhoods lack adequate drainage and sanitation. The Sialkot cluster itself is highly differentiated, with large and medium scale manufacturers at one end and smaller producers, subcontractors and waged workers at the other. Nevertheless, cross-cutting social identities often dilute the sense of duality. Most firms are family units and many extended families have large and small producers in their midst. Workers, artisans and subcontractors walk in and out of the offices of firm owners while the latter spend a substantial amount of their time on the shop floor in technical discussions with workers and subcontractors. This element of interfacing is helped by the close proximity of producers to vendors. In the towns' industrial areas, medium and large firms making sophisticated precision instruments are surrounded by countless small, open-fronted, process specific workshops. In many areas the boundaries between residential and manufacturing space are indeterminate with whole neighbourhoods engaged in some aspect of the industry.

Key production relationships for local firms include vertical ties with subcontractors and external buyers and loose horizontal links with other producers, particularly through the trade association.¹³ Vertical ties tend to be long-standing with most firms having dealt with the same subcontractors and buyers for an average of over ten years. There is also variation. Small and medium sized firms are more dependent upon subcontractors than larger firms. In addition, subcontractual ties are particularly important in processes considered quality critical - such as forging, filing, heat treatment and polishing. Most firms regularly assist subcontractors engaged in these activities, especially through detailed discussions and technical feedback on manufacturing processes, product quality and production organisation. Subcontractors can also become conduits for technical knowledge and developments within the cluster, especially for smaller producers. Increasingly, however, the key tie for all manufacturers, are their links with external buyers. Ties with buyers are important in obtaining technical information and helping local producers face new competitive challenges, such as recent pressures to meet international quality assurance requirements. Most firms in Sialkot consider external clients as a leading source for technical and marketing information. Some have developed their technical capacity and product lines through active collaboration with foreign buyers. A few local firms have even entered into joint venture partnerships with the leading German manufacturers in the industry.

Most firms in Sialkot consider other local producers to be their leading competitors. Competition can be aggressive, over prices, the poaching of clients and strategically valuable information. Despite local rivalry there is evidence of horizontal cooperation. Local entrepreneurs exchange production related ideas and discuss common problems with each other. Occasionally such discussions take place within the trade association. More often they occur informally. Other collaborative initiatives by local

¹³ For a detailed discussion of production and trade ties within the Sialkot cluster, see Nadvi 1996, 1997.

firms include the setting up of the dry port, that eased customs handling difficulties that local firms earlier faced. Such forms of joint action provide critical gains to the cluster, and suggest that local competition and local cooperation can coexist, albeit in tension, within the Sialkot cluster.

4 Social identity categories in Sialkot

My proposition is that local social networks provide key benefits which make it possible for Sialkot's surgical instruments cluster to function and compete in global markets. These include a policing system to regulate contracts, mediate competition and encourage cooperation in the cluster. As well as an information bank providing technical knowledge on the sector, on production and ways of doing, and personal knowledge regarding an individual's professional and social reputation and trustworthiness. Before exploring whether and how social networks influence the workings of the Sialkot cluster, this section identifies and details the dominant social identities in Sialkot.

The identity categories that define community and influence social and economic behaviour in Pakistan's Punjab are multiple and interwoven; some overarching, others unique to specific groups. Among the former are common language and ethnicity (Punjabi) and religion (Islam).¹⁴ It has been argued that Islam and Punjabi ethnicity play a positive role in encouraging entrepreneurialism and supporting a culture of drive, hard work and thrift (Altaf 1983).¹⁵ While not discounting the effect of religion and ethnicity, I propose to focus on three interconnected identity categories which are subordinate to the overarching identity of a Punjabi Muslim. These are kinship group, family lineage, and 'localness'. Before proceeding to the pattern of social networks found in Sialkot's surgical instrument cluster, these identity categories need some explanation.

Kinship

There is no single, unitary, basis for kinship ties among Muslims in South Asia. In north-central India, non-corporate, socially hierarchical and often occupationally based *zat* identities are important

¹⁴ This is not to deny the presence of religious and ethnic minorities. Nevertheless, over 95 per cent of the local population is Muslim (Population Census: District Census Report of Sialkot; 1981), and religious influences are ever-present in Sialkot. Most entrepreneurs I spoke to are openly religious. Attendance at Friday prayers by men is considered *de rigeur*, fasting in Ramzan strictly observed, and religiosity respected. In most firms, there is at least one Quoranic *ayat* (verse) framed on the walls. This, however, is not unique to Sialkot. It reflects the increasing influence of religion in daily life in Pakistan.

¹⁵ This myth was incorporated into British colonial policy (Darling 1947, Gilmartin 1988). More recently, such stereotypes have become a central strand in nationalist discourses in Pakistan (A.S. Ahmed 1983, 1986).

(Ahmad 1978).¹⁶ Among the Pathans, kinship is primarily shaped on tribal lineage (Ahmed 1980; Barth 1959; Lindholm 1982). In central Punjab, however, *biraderi*, which literally translates as fraternity or brotherhood, is the key institution of kinship Alavi (1972, 1995). Alavi describes *biraderi* as the 'basic unit of social organisation...[consisting of] a tightly knit corporate group which, typically, is subject to the authority of the *biraderi panchayat* (i.e. council)' (Alavi 1995: 1).¹⁷

Broadly speaking, and in sharp contrast to Hindu *jati* or sub-caste rules, the distinct forms of kinship among Muslims are endogamous, with a preference for parallel cousin marriages, and reflect aspects of both vertical and horizontal solidarity. *Biraderi*, while often an occupational category, is usually distinct from *zat*, the latter being a weaker and more diffuse concept in Punjab. Thus while *zat* lacks a corporate structure and is loosely organised internally, a *biraderi* can have fairly concrete and cohesive institutions for the expression and the enforcement of group interests. These are the rural *biraderi panchayat* (council) and the urban *biraderi anjuman* (society). The *panchayat* (or informal council of elders) enforces collective decisions on *biraderi* members. These include decisions regarding the arbitration of disputes within the *biraderi*, the allocation of common resources, choice of political and electoral alliances, and, ultimately, some control over marriage by adjudicating disputes over marriage claims.¹⁸ The *panchayat* also has the power to impose sanctions on its members.

The ultimate sanction that a *biraderi panchayat* may impose on a household is to 'expel' it from the *biraderi*. When that happens those who are expelled become 'non-persons' in the society. They become vulnerable and disgraced. What is thought to be the most terrible aspect of such punishment is that the family cannot expect to be able to get spouses for its sons and daughters. This is not punishment that anyone wants to invite and as a result the authority of the *biraderi panchayat* is very great (Alavi 1995: 8).¹⁹

¹⁶ *Zat* among Muslims is often colloquially understood to have a close resemblance to the Hindu concept of caste in terms of social hierarchies. Nevertheless, while *zat* hierarchies are both symbolic (for example, who 'sits' where in village society) and real (who can marry whom), they carry neither religious sanction nor notions of ritual purity associated with Hindu caste structures. For debate on the similarities and difference between Muslim *zats* and Hindu caste structures see Mandelbaum 1970:546-559, Alavi 1972, 1995, and the collection of papers in I. Ahmed, ed., 1978, and Fuller, ed., 1996.

¹⁷ In contrast to the vast literature on caste in India (Mayer 1960, Mandelbaum 1970, Dumont 1970, Beteille 1992, 1996, Fuller 1996), material on kinship, *biraderi* and social stratification in Pakistan's Punjab is sparse. Exceptions are village studies by Eglar (1960), Alavi (1971, 1972, 1973, 1995), and S. Ahmad (1977).

¹⁸ According to Alavi (1995:8) 'some *biraderis* regulate marriages more strictly than others. The degree of cohesion of *biraderis* appears to depend directly on their strictness in enforcing *biraderi* endogamy and, furthermore, in the ability of the *biraderi panchayat* in regulating marriages.'

¹⁹ Alavi goes on to note, however, that *biraderi* expulsion is rare which, he implies, reflects the strong deterrence power of the sanction.

The influence of the *panchayats*, however, vary according to the economic status of the *biraderi*, the *panchayat* leadership and overall *biraderi* solidarity.²⁰ In addition, in urban settings the corporate structure of *biraderis* become weaker as ‘the functions of kin groups begin to atrophy and the rules of kinship tend to weaken’ (ibid.: 28). Endogamy is less strictly enforced, common resources less clearly defined, and the power of the sanction of exclusion less effective. Nevertheless, even in the urban environment endogamy remains the preferred option.²¹ Residential housing patterns, particularly in small towns, often reflect *biraderi* concentrations and in some trades occupational *biraderi* identities retain some influence. More importantly, the urban *biraderi anjuman* despite its more restricted remit for enforcing collective decisions on *biraderi* members, exercises an importance influence in urban electoral politics.²²

Biraderi identities, therefore, can continue to have an important function in regulating social and political behaviour even in urban surroundings where kinship loyalties have begun to weaken.²³ Moreover, where individuals come together in sectorally specialised clusters, working in industries associated with traditional occupational groups, *biraderi* identities often overlap with economic and trade identities. In an earlier study (Nadvi 1990: 110), I observed that *ansaris* (the traditional *biraderi* of weavers) accounted for over 60 per cent of workers sampled in a cluster of small-scale textile weavers in Gujranwala. In such ‘traditional’ occupations *biraderi* continues to be important. It provides mechanisms for informal training, through inter-generational on-the-job apprenticeships, which are effectively restricted to *biraderi* members; gives access to information on the social and business reputation of individual agents; provides social collateral for informal credit; and, reinforces community identities via residential spaces that parallel *biraderi* and sector concentrations.

Family

If *biraderi* exerts some influence on social and economic relations in urban Punjab, the family is an equally important social and economic institution. The family in Punjab is a complex entity. It is not restricted to the nuclear household unit. Family as lineage incorporates both the immediate and the extended family. It is patriarchal and virilocal. Thus, as in much of the subcontinent, the common ideal is that of filial and fraternal solidarity, which prescribes that brothers should remain together in

²⁰ For example, *biraderi* panchayats for rural landless labourers and sharecroppers acquiesce in decision making to the landlord for whom they work. Similarly, *biraderis* that are less stringent in enforcing endogamy are often weaker in enforcing collective decisions.

²¹ Fisher's (1991) study on marriage patterns in urban Lahore suggests clearly that endogamy is sustained. However, he argues that the larger category of *zat* often substitutes for *biraderi* as the primary basis for kin identity.

²² Gilmartin (1988:83) details how *biraderi* identity ‘served as a powerful idiom of horizontal political solidarity’ in urban Punjab during the colonial period, and how it acted as ‘response to the growth of communalism’.

²³ In a very different setting, Werbner's (1984, 1990) work on the Pakistani immigrant community in urban Britain shows the continued influence of kinship ties on entrepreneurship and business relations

the parental household after they marry, sharing equally in one purse and in common property, helping each other according to need and each giving according to his best abilities (Mandelbaum 1970: 34).

The 'ideal' joint and extended family is found in both rural and urban settings. Joint family units, however, tend to be weaker and less cohesive among the resource poor where income pressures and lack of space force married couples to move in search of employment or seek independent housing as their families grow. In contrast, for the wealthier and better endowed the extended family reflects status and provides economic benefits. Thus 'among merchants and artisans the economies of scale of a large household are reasons for upholding joint families' (ibid.: 54).

The joint family as an 'ideal' institution is, of course, problematic. Internally the family is highly differentiated and vertically structured. Relations within the family, that is, between husbands and wives, fathers and sons, among brothers and so on, are rarely equitable. Power structures within the family are produced by, and reproduce, dominant social values and patriarchal attitudes. For example, the interests of women and of younger generations being subjugated to those of the family's male elders. Thus in a family firm, the management of the affairs of the firm, and to some extent the family unit as well, rests on adult, male family members under the overall authority of the male family head. Strong and 'harmonious' family relations not only provide a basis for mutual support and trust among family members, but also project to others in the community an image of reliability, probity and strength of the family as a whole. This enhances the social and economic reputation of the family.

Moreover, in as much as the 'ideal' family is a gendered construction, so also is the notion of the 'ideal man'. Religiosity, family values, honesty, a reputation for hard work and for entrepreneurialism is also combined with the gendered role of the strong family man. Thus the reputation of the family is tied in with the reputation of its men - as the successful fathers and sons - and its women - as the compliant mothers, wives and daughters.

Thus, the manner in which the family celebrates marriages, births and religious functions and mourns death within the family further reflect on its social standing. The family as a social unit is therefore constantly and systematically appraised in the eyes of the larger society, in which the family's reputation is shaped by, and shapes, its social and economic position. Where entrepreneurial families enter into economic ties with others, they not only trade in goods and services but also in social reputation and honour. This implies, as Bayly (1983: 377) suggests, a 'dual role', that of 'a profit-making enterprise and as a constellation of relationships through which [social] honour was acquired and conferred'.

Marriage is a particularly important institution in which social and economic ambitions are brought together. Marriage implies a union between individuals and between families. The dominant practice of arranged marriages explicitly aims at building social and economic alliances between and within

families. This is clearly patriarchally structured. Marriage involves the giving and taking of women as a way of strengthening network allegiances, in both business and social realms. By viewing women as 'objects of honour' for the family and the *biraderi*, the dominant patriarchy commodifies women whose marriage is not a reflection on them but on the honour (*izzat*) that it bestows on their families, and is reflected to the outside world (Fisher 1991). As Alavi (1995: 28) observes, marriage is about power relations. 'Control over the circulation of women establishes social bases of power that is exercised over members of the kin groups by men who are in charge' of the family and the kin.²⁴

Within this gendered framework, there are two distinct types of preferred marriage alliances: between cousins, and marriages outside the extended family. Parallel cousin marriages ensure that property rights (and the business) do not leave the lineage through inheritance by women. Social and economic intra-family ties between siblings are seen as being strengthened through the inter-marriage of their children. In addition, such marriages suggest to outsiders a consolidation within the family and an image of solidarity. The motivation for marriages outside the extended family is that it provides an opportunity for improving social status. Marital alliances can be forged with families who have a higher social and economic status within the *biraderi* lineage, or with families in other lineages which rank socially higher. Such marriages not only signal the family's rise in status and rank, but also provide family members access to a wider circle of business and social contacts.

Finally, it is important to note that families are not static in their structure or in the ways they behave. Family harmony is threatened by forces that strain bonds of solidarity and mutual support. These include internal divisions of age and gender. It also reflects a natural cycle in which, as families grow, they can also fracture. Divisions can arise from shortages of space, from intra-family disputes on the distribution of property and inheritance, and on decision making and authority structures. This can be especially important when families are also manufacturing units. The segmentation of the extended family into independent households often causes the family firm to split. Nevertheless, ties between immediate and extended family members are rarely totally severed. On the whole, family ties continue to provide a powerful network of contacts and of information. This can improve the ability of small producers to function in activities marked by imperfect information and uncertainty by providing access to collective resources, reputational association of the larger family and the pool of knowledge and information that family members hold and share with each other.

²⁴ The reification of women, as the bearers of the family's collective honour, also provides the ideological legitimation for their seclusion from larger society through the practice of *pardah*, the veiling and exclusion of women and the gendered division of family and public space, which families adopt as they acquire social status and economic wealth.

Localness

The notion of collective and shared information, essentially an informal social and economic data bank, provides the link to the third category of social identity. That is, social association formed by being 'located' within the local community or neighbourhood. Individuals do not need to be related by common lineage or kin ties to form social bonds with each other. These can, and are, developed over years of living and working together in a narrow and confined community space. These ties are reinforced by constant (often daily) interaction in the residential lane, in the local shops, in schools, in the tea-shops, in the local mosque and in the workplace. They are built over years, as children and as adults. They are cemented by the sharing of gifts at times of secular and religious celebrations, by participation at birth and wedding celebrations, and through the sharing of grief in funerals. Through such regular interaction a local social reputation is built up, which can act as valuable collateral in local economic and social transactions. Such ties are more specific, and imply more than simply community bonds. The term community being too broad to capture the notion of 'localness'. *Biraderi*, for example, can be a community identity. Localness implies being local, in a geographical, cultural and historical sense. If you are born and grew up in Sialkot, you do not necessarily have to continue to live their to be a Sialkoti.

In the context of sectoral clusters, localness can also take on a cluster and sectoral dimension, creating a sector-specific notion of socialised relations. Social ties form through recurring contracts with agents, and information is shared across the cluster about the reliability and overall reputation of others. This is not dissimilar to the notion of 'earned' trust in business gaining primacy over socially 'ascribed' trust (Schmitz 1995a). There is, however, a close connection between business and social ties. Trust, reputation and honour in business relationships are intertwined with the social relations that agents have with each other and their overall social standing. An individual's social standing impacts upon, and is itself impacted by, their professional reputation. For example, close business ties often develop into friendships. These are usually represented symbolically as family relationships. Thus for men, close male friends are accorded the honorific status of *bhai* (elder brother), their wives become *bhabi* (sister-in-law) and their parents *chacha* and *khala* (paternal uncle and maternal aunt). Incorporating close business ties and bonds of friendship into the network of family, strengthens personal ties and implies notions of trust, as well as access to the support associated with family kinship.

What this section shows is that urban Punjabi society is a richly textured and multi-layered social environment. A number of cross-cutting social identities, from religion, ethnicity, biraderi, family and 'localness', define individuals and influence their links with others. Biraderi, family and localness are particularly important. These categories can provide institutions of corporate regulation, are essential to the social reproduction of the community (closely influencing marriage ties), and to the location of an individual within the local regional and cultural space. Together they play an important part in

constructing the social reputation of an individual. Finally, it is noted that the social and the economic spheres cannot be disentangled from each other. In a small town environment, where most individuals are known and locatable within the complex array of interweaving social networks, productive and social life are inseparable. The next section explores how social identities and networks influence production relations in the Sialkot cluster.

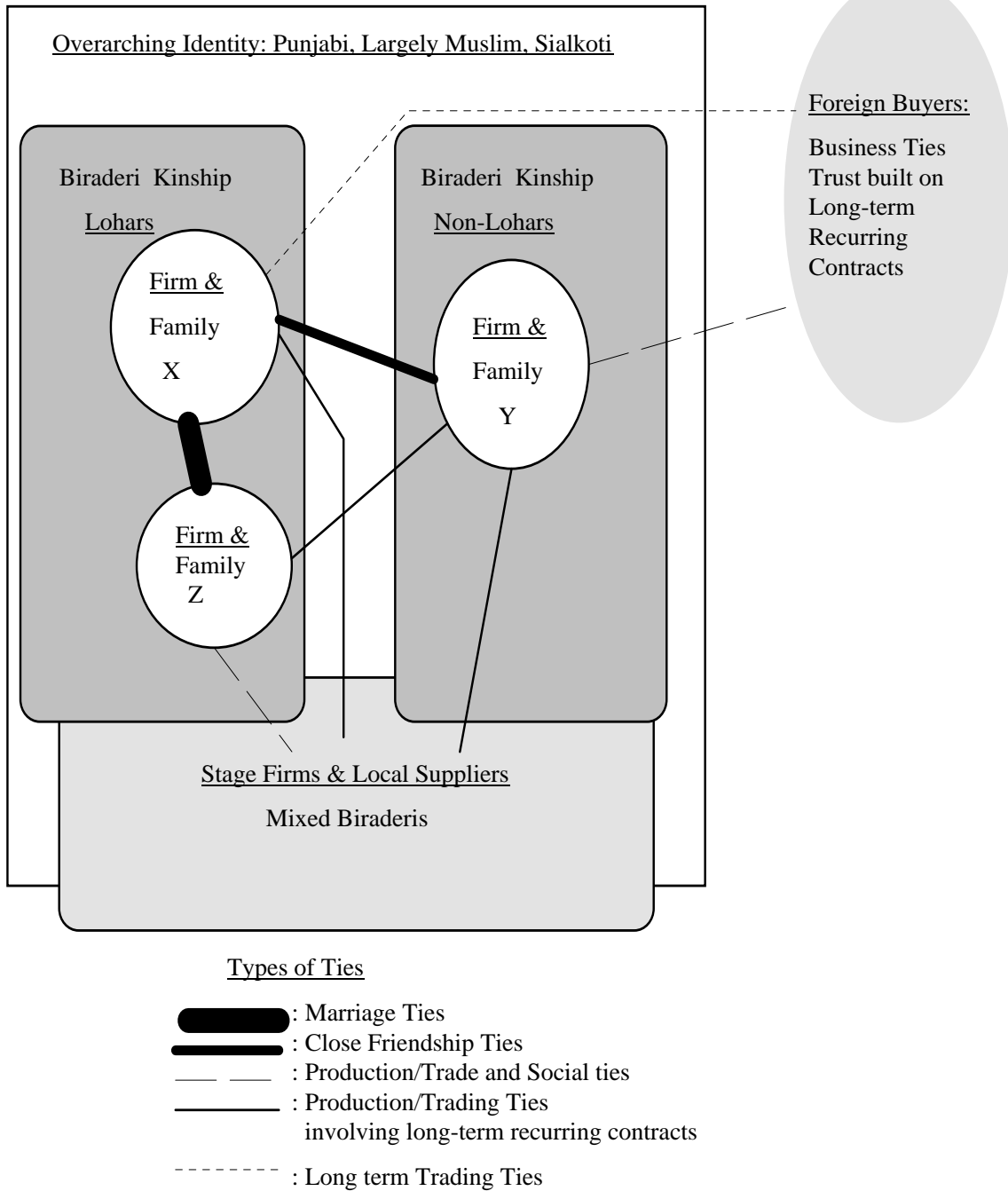
5 Economic relevance of social networks

The previous section has shown that individual firms in Sialkot can be linked to each other through interconnecting social networks of *biraderi* kinship, family lineage and localness. Thus, most firms are families units, while the family is itself located in the *biraderi* kin group. Alongside family and *biraderi* there is also the social association, at the street, neighbourhood, even city level, of being local. In addition, close friendship bonds are often represented as symbolic family ties. At times these ties (among peers and within the *biraderi*) are cemented through marriage. Outside the cluster are foreign buyers who maintain direct business links with local producers. Often, links with outsiders take on a social aspect. Hence, all actors within the industry are known quantities, both professionally and socially.

The relative weights attached to each of the three categories of *biraderi*, family and localness, and the strength associated with each type of social network in terms of a governance structure for regulating inter-firm behaviour, changes with time. Quantitative and qualitative data, including a questionnaire-based sample survey of fifty-seven manufacturers and seventy-two subcontractors as well as detailed case studies and firm and family histories, was collected between November 1993 and June 1994. This is used to assess the relevance of these social categories to the organisational structure and functioning of the Sialkot surgical instrument cluster. To restate, our concern is with how these ties regulate inter-firm relations, and thus assisting local cooperation, and how they facilitate information flows, particularly in technical learning and marketing knowledge.

Chart 1: Intersecting Social Networks in the Sialkot Cluster

Local Reputation, Knowing & Being Known



a) *Biraderi*

The metal-based surgical instruments sector, by the very nature of its work, has traditionally been associated with the *Lohar* (literally ironsmiths) *biraderi*.²⁵ *Lohars* in Punjab were historically a predominantly Muslim group²⁶, who as village artisans provided a support function in rural communities by manufacturing and repairing agricultural and household implements, metal utensils, and occasionally weaponry, and by shoeing horses. They were considered village servants (*kammis*) who in return for their labour had a right to a share of the harvest. *Lohars*, like most *kammis*, rarely owned land and ranked low in the rural social order.²⁷ This denoted their status in village society, imposed restrictions on which communities they could marry with, and often restricted whom they could eat and drink with. In terms of group solidarity, *Lohars* were traditionally in a weaker position compared with *biraderis* of cultivators. This was partly due to their relatively lower social status. Another factor was that *Lohars*, like other *kammi* groups, were geographically dispersed with no more than a few *Lohar* households in any given village. As a result, they lacked the tightly knit corporate structure and *biraderi panchayats* found among peasant cultivators and landowners.²⁸

Sialkot's surgical instruments sector began with the *Lohars*, and this *biraderi* monopolised the industry during its earlier years. With their traditional metalworking skills, *Lohars* fostered the sedimentation of specialised technical knowledge. This was critical at the early stage of the development and survival of the industry in Sialkot. They developed the codes, measures and standards for forging metals and shaping instruments. They also became trainers and teachers. Artisanal knowledge on the forging and shaping of surgical instruments was handed down among *Lohars*, from father to son through the generations. As production expanded more and more *Lohars* entered the industry, being employed as skilled workers with their *biraderi* kin members. Until 1947, there is no evidence of other *biraderis* being engaged in the manufacturing aspect of the industry, although local Hindus played an important role as traders.

The exodus of the Hindu community in 1947 provided an opening for members of the Muslim *Sheikh* (trader) *biraderi* to enter the sector. As the sector grew, especially in the 1960s and 1970s, *biraderis*

²⁵ In parts of Punjab Lohars are closely related to the kammi biraderi of Tarkhans or carpenters. According to Rose (1914:36) these two groups often formed a 'single cast called Lohar-Tarkhan, and the son of a blacksmith will often take to carpentry and vice versa.'

²⁶ Rose (1914:36), using the census of 1883 and 1892, reports that 34 per cent of Lohars in (united, pre-Partition) Punjab were Hindus and 8 per cent Sikhs. The Hindu Ramgarhia community is similar to the Muslim Lohars, with similar metalworking and carpentry skills, a reputation for being able to work with their hands and for their entrepreneurialism. They feature prominently in the industrial success seen in East Punjab (see Tewari 1996).

²⁷ At the apex of the Muslim zat hierarchy are the Syed, or Shah and Qureishi (who claim descent from the Prophet or from his tribe the el-Qureish) and Sheikh (traders) zats. These are often referred to as the Ashraaf (or nobility, those of historically foreign descent). They are followed by various landowning and cultivating zats (such as Maliks, Jats and Arains) many of whom converted from Hinduism. Hence a number of Muslim zats share the same name, and often similar social ranks, as certain Hindu castes (for example, Rajputs and Jats). At the lower rungs are the kammi zats, including carpenters (Tarkhans), blacksmiths (Lohars), and barbers (Nais).

not known for metalworking began to enter surgical instrument making in increasing numbers. Rising demand for Sialkot-made instruments led *Lohars* to turn to non-*Lohars* to satisfy the need for labour. Barriers to entry, based on knowledge and expertise of metalworking, were overcome as non-*Lohars* acquired technical training as apprentices in firms and stage units run by *Lohars*.

Lohars continue to dominate Sialkot's surgical instrument sector in that they are the largest single *biraderi* group, and own and operate most of the oldest enterprises. They are the leading *biraderi* observed among sampled firms, accounting for 43 per cent of entrepreneurs in sampled final firms and 32 per cent of owners of sampled subcontractors.²⁹ A myth much propagated in Sialkot is that *Lohars* are the most skilful artisans in the trade. Many *Lohar* respondents assert that 'we have it [metalworking skills] in our blood', while others state that they are 'good with their hands'.

Despite the fact that *Lohars* are the leading *biraderi* in the sector, a number of other *biraderis* are also present. The fifty-seven surgical instrument manufacturers interviewed came from a total of eleven different *biraderis*. Among the seventy-two subcontractors sampled, sixteen *biraderis* other than *Lohar* were reported. Moreover, many of the larger and more successful manufacturing firms in Sialkot are owned and operated by members of the *Sheikh* (trader) and *Arain* (small cultivator) *biraderis*. With no prior occupational tradition in metalworking, they have acquired highly specialised, hands-on, technical skills in surgical instrument making. *Arains*, traditionally a small landowning and market gardening group with a reputation for hard work and entrepreneurship, are now a significant *biraderi* in the sector, accounting for approximately a quarter of sampled final firms and stage units.³⁰

Firms owned and operated by *Lohars* stand out from those run by other *biraderi* groups in that they tend to be older units, and are more likely to have a family tradition in the sector. Roughly three-quarters of all *Lohar* firm owners interviewed consider surgical instrument making as the traditional family occupation, with their firm being second, third, or fourth generation units. In contrast, among non-*Lohar* firms, 63 per cent have no family tradition in this activity, and two-thirds are first generation units set up by the current owner.

Being a *Lohar*, however, appears to provide no significant competitive advantage. Firms run by *Lohars* neither report higher sales, nor significantly different forms of production organisation from other *biraderi* groups. In fact, only 39 per cent of *Lohar* firms report a rising trend in profits over the

²⁸ I am grateful to Hamza Alavi for pointing this out (personal communication: 9th August 1995).

²⁹ Of the 57 firms surveyed, four did not disclose their *biraderi* identity.

³⁰ Darling (1947:44) said of them: 'for sheer ant-like industry there is no one in the Punjab to touch the Arain.'

previous five years, compared to 53 per cent of non-*Lohar* firms. When asked whether being a *Lohar* is important for success in the industry all firms and subcontractors report negatively.

Biraderi appears to play no part in providing an organisational framework for regulating vertical contracts. In terms of skilled labour, input suppliers or process subcontractors, firm owners do not deal exclusively with members of their own *biraderi*. Although *biraderi* background is generally known, it is not a factor on which confidence is built in inter-firm ties, or the capability of labour evaluated. *Biraderi* ties also appear to be insignificant at the level of multi-lateral horizontal cooperation, despite the horizontal solidarity implied in *biraderi* kinship. Annual elections for the leadership of the sector's trade association, although faction-ridden, are not decided on *biraderi* lines. Yet, *biraderi* ties are influential in the larger arena of local urban and regional politics (in which the *Sheikh*, *Arain* and *Kashmiri biraderis* were more important players than *Lohars*). Even here, however, other forms of local political allegiances are equally important.

Biraderi identities do continue to play an important part in social relations in Sialkot, especially in terms of marriage ties. *Biraderi* endogamy still remains the dominant practice. In this regard, although being a *Lohar* is no longer a guarantee for success in the surgical instrument industry, an interesting finding is how social status among some of Sialkot's *Lohar* entrepreneurs has changed with the prosperity they have acquired by manufacturing and exporting surgical instruments. As mentioned earlier, *Lohars* traditionally ranked low in the social pecking order of Punjabi kin groups. However, as many *Lohar* families flourished and became part of Sialkot's economic and social elite, their kin identity also began to change.³¹ Wealth brought with it higher social status both in real and symbolic terms. Some respondents from leading medium and large enterprises in the cluster began to identify themselves as *Mughals* rather than *Lohars*. *Mughals*, who claim descent from Muslim invaders who came to South Asia from the fourteenth century onwards, and are thus one of the *Ashraf*, have a higher social status than *Lohars*.³² One key implication of this shift in social identity is that, as *Mughals*, it is socially more acceptable for these families to marry their offspring to members of other *biraderi* groups which, while keen to make a marriage alliance with wealthy entrepreneurial families, would find it socially difficult to marry *Lohars*.³³

³¹ That is not to say that all Lohar families were successful or had grown from small to large enterprises over the years. In fact of the sample of firms that were small (employing less than 20 persons) roughly one-third were Lohar owned.

³² Some of the 'new' Mughal families claim descent from sword smiths who came in the train of the Mongol armies and settled in the Sialkot area. Certainly during the sixteenth and seventeenth century Wazirabad, a small town near Sialkot, was widely acknowledged as a leading centre for the manufacture of swords and other metal weaponry (Imperial Gazetteer of Punjab 1902). Rose (1914:130), however, notes a tendency in parts of the Punjab 'for men of low caste to call themselves Mughal' without any claim to Mughal ancestry.

³³ The view that Punjabi biraderi identities can change as the economic position of lineages alter over a number of generations has been observed by others, see Altaf 1983, Alavi 1995.

Although *Lohars* were critical to the cluster's initial formation and development, particularly as a repository of technical knowledge, they exert no direct influence today on patterns of inter-firm cooperation. In part, this reflects the limited power of kinship institutions (particularly *biraderi anjumans*) in enforcing economic exchange contracts in urban Sialkot, and the diffusion of metalworking skills among a wider group of non-*Lohar* artisans. Kinship-based social networks, however, do exist in Sialkot, especially at the level of social reproduction. If kinship does not fully account for the way in which productive relations develop within the cluster, in what ways do networks based on family lineage influence inter-firm ties?

b) Family

The family is a central economic and social institution in Sialkot. Most firms are family-run enterprises. Over half the sample state that all their adult (male) family members are directly engaged in the firm, either in managerial and supervisory tasks or in overseas marketing. For others, a large proportion of family members not directly involved in the sampled unit were, nevertheless, occupied in some capacity in the cluster - either with their own firms, sometimes as subcontractors or raw material suppliers. Thus of the fifty-seven firms interviewed, three-quarters report **all** male family members working in Sialkot's surgical instrument sector. This gives an indication of the pervasiveness of family in the cluster and suggests the influence of family bonds and relationships.

Family ties affect intra- and inter-firm relations in the Sialkot cluster. Management in most enterprises is the responsibility of adult males in the immediate family, who often specialise in specific production, management or marketing tasks. Take for example Unique Surgical, a successful medium to large firm, employing thirty waged and seventy piece-rated contract workers, with exports of over US\$ 0.5 million to the US and EU markets. The firm is headed by an elderly owner but effectively run by his four sons. The eldest son, based in Chicago, manages an independent US office that buys instruments from the parent firm to supply wholesalers and end-users in the US. Of the three remaining sons in Sialkot, the oldest is the firm's outward face. University educated, confident, intelligent and well travelled, he is the firm's link with its European buyer, handling marketing and undertaking trips abroad in search of contracts. He is considered the *de facto* head of the enterprise and key decisions are deferred to him. In exercising his authority he regularly consults his father and brothers, and occasionally the firm's full-time master craftsmen. The second son takes care of the administrative and managerial functions. The youngest, despite his youth (early twenties) and low level of formal schooling, is sufficiently skilled in the technical aspects of manufacture, with over ten years of experience and apprenticeship, to be responsible for day-to-day production. In some large firms, the distribution of tasks within the family (including members of the extended family) is even more sophisticated with family members specialising in quality control, handling stage units, and running specific product lines.

At the level of inter-firm ties, many of Sialkot's entrepreneurs, and thus firms, are related to each other through blood or marriage ties. This is most apparent in extended families which often support a number of separate production units. Some of these firms are independent of each other and technically compete. In others, ideas are shared and crises confronted together. In others, there are direct forms of production co-operation through the use of common facilities and resources. In certain instances, separate units run by different family members, while operating as distinct firms, are essentially part of the same industrial group. Take for example Diamond Surgicals, one of the largest, oldest and most successful firms in the cluster. The firm is an industrial group consisting of six separate companies each producing surgical instruments. The group is managed by three brothers and their sons. The group's combined annual turnover is around US\$ 4 million and it employs more than 200 workers. Founded in 1942, Diamond is a second generation off-spring of one of the pioneering firms of the cluster, Mughal Brothers, founded in 1902. In 1972, a fourth brother left Diamond to form his own firm, Global, which is now a successful medium-to large sized enterprise. Global is thus the third generation offshoot of the original firm, Mughal Brothers.

Patterns of horizontal competition and cooperation within families vary. In the Diamond group there is close cooperation. Although each of its units are run as independent firms with separate production facilities and distinct buyers, they share common technical facilities (such as die-making and heat treatment), stocks of finished products and raw material, make joint purchases, and sometimes trade workers among the group. Most importantly, all six firms contribute to the group's overall financial position. In contrast, Diamond's relations with Global is less close. Global regularly uses Diamond's heat treatment facility and obtains surplus instruments as and when needed from the larger Diamond group. When asked about this the head of Diamond said:

‘Well, he is my brother. If he needs something we will help out. He set up separately because he wanted to run his own show. That's fine by us. If any of my brothers or nephews within the group wants to follow a separate path they are free to do so, but we try to keep together’ (M. Moeed 13 February 1994).

However, certain types of information and technologies are not shared, even with siblings. Thus, Mr Moeed goes on to say about his brother:

‘We do not share our marketing information with each other. He has his clients I have mine. I don't ask him his prices or how he does things and he doesn't ask me about mine. But of course we know what's going on... [and]... we will not let anyone touch our CNC [computer numerically controlled] machines when we get them. Not even my brother Kashif in Global will get access to it. **In this business it is everyone for themselves**’ (ibid., emphasis added).

Diamond's ties with its 'parent' firm, Mughal Brothers, and the twenty-odd other off-shoots of Mughal Brothers is restricted largely to social and family ties. Although there is some discussion of common

problems and mutual support for each other's positions in the trade association, there is no direct production cooperation. The head of one large off-shoot of Moghul Brothers described extended family ties as follows:

'I am related to the Diamond group. My sister is married to Moeed, the head of Diamond, and he and I have the same great-grandfather so you could say we are the same family. But we do not discuss business with each other. **Business is business and family is family.** When we get together at family occasions, like marriages and birthdays and so on we don't talk shop. You see there is no real competition between us, we have our clients they have theirs and there is more than enough business to go around for all of us. So we are all happy' (M. Sami 22 February 1994).

A few days after this interview, however, I revisited Mr Sami and found him with his cousin Faisal, the younger brother of Moeed and the quality control manager at Diamond, discussing specifically the reliability of a particular subcontractor, and more broadly how they were trying to conform with new quality control pressures facing the industry. This meeting suggested that discussions among extended family were common, not restricted to purely social occasions, nor solely to social and family issues. Yet, for many local actors, such discussions were often not considered as related to business - more a case of social banter. It is through such frequent exchanges, however, that much valuable information is shared.

Take another case of loose cooperation across extended families. SurgiPak Instruments and Sialkot Surgical are two large firms, that are not only next-door neighbours on the industrial estate, but are also run by first cousins, who live in neighbouring houses in one of Sialkot's better suburbs. Originally part of one family-run unit that bifurcated in the mid-1950s, both firms are today managed by dynamic, young, university-educated individuals. Despite bonds of family and friendship, there is no formal co-operation between the two cousins. Each has his own forging unit, chemical cleaning plant and die-making facilities, and their own networks of subcontractors. Nevertheless, informal cooperation is common. The cousins share ideas and discuss matters relating to the industry with each other, help each other at times of crises, and support each other in trade bodies. In fact, the head of SurgiPak Instruments had lobbied hard to get his cousin successfully elected as President of the Sialkot Chamber of Commerce and Industry during the early 1990s. As far as competition is concerned, both cousins agree not to poach each other's clients and to inform the other if they hear of other firms attempting to do so. As the head of SurgiPak Instruments said:

'Both of us have large enough order books to keep us satisfied. Even if we wished to expand we would not be entering into direct competition with each other. In fact there is no competition as such between us. We know what each other does, we don't hide anything, but we also respect and support each other' (S. Arif 7 May 1994)

Do family ties play a more important role in inter-firm relations among smaller enterprises? It would not be unreasonable to expect smaller firms, with their more limited resources, to be more dependent upon the extended family. There is, however, no evidence to suggest that family ties vary in inter and intra-firm relations for firms of different sizes. In fact, one example where sibling relations (or rivalries) could lead to friction, and possible breakdown, in intra- and inter-firm co-operation comes from an SME. This, relatively successful firm, Unimed Surgical, is run by the owner, Rashid, his three sons, and two sons-in-law. Although a family enterprise, there is a clear hierarchy in the roles allocated to sons and to sons-in-law. In particular, the latter are excluded from some managerial functions, and are not privy to information that Rashid considers critical to the firm. For example, Rashid would not let his sons-in-law have access to the specific technology (for making tungsten carbide tipped instruments) which gave his unit a unique advantage in his eyes. There is a clear tension here with the sons-in-law well aware of their lower status in the family. This is partly because they not only work for their father-in-law but also do not conform with virilocal practices, living with their wives' family and thus acquiring the lowly status of a *ghar-damad* (house or 'domesticated' son-in-law). They are thus far from the gender ideal, in effect not 'real' men, and thus less likely to be trusted or respected.³⁴ Intra-firm tensions are thus mixed with intra-family tension.

Such tensions also enter into Rashid's relations with his two younger brothers, Riaz and Fayyaz, both of whom are also in the industry. Riaz, based in Germany, is a leading supplier to the EC market and sources from various firms in Sialkot. Fayyaz, the youngest brother, has his own firm in Sialkot that supplies solely to Riaz. Rashid also used to supply Riaz. There has been a falling out and Rashid refuses to have any dealings with Riaz despite the fact that this could provide his firm, which is searching new buyers, with a long-term orders.

The basis of the conflict lies ostensibly in a dispute relating to business practices and the sale of sub-standard material. As a result, Rashid, who prides himself as quality-conscious producer, has cut off all links with both younger brothers. This is a drastic action not only for its implications for the firm, but also for family relations. It is very likely that such an intra-family dispute has other, non-production related, dimensions to it. The real reason may be far more complex. One possible factor relates to marriage and family ties. Marriage of children among the brothers is thought desirable and a sign of strengthening family ties. Within the practice of parallel cousin marriage 'an elder brother has the highest ranking claim for his younger brother's daughter's marriage to his son' (Alavi 1995: 8). Riaz, the wealthiest of the three brothers went against his elder brother's wishes by marrying his daughter to Fayyaz's son. Riaz's action was in effect a statement of power within the hierarchy of his brothers, power that came through his relatively better financial position. In doing so, Riaz, and

³⁴ The gendered construction of the ideal man, and how that shapes the character and behaviour of Sialkot's entrepreneurs and their relationships to each other, clearly needs to be further explored.

Fayyaz for agreeing to it, diminished the social honour (*izzat*) of the eldest brother Rashid and lowered Rashid's standing in the eyes of the larger social community. This caused a breakdown in family relations. What this shows is that intra-family production linkages are prone to often brittle sibling rivalry. In a society where hierarchies are maintained within families, bonds of fraternal solidarity, that can potentially strengthen a firm's economic position, are themselves threatened by the differential economic developments of family members.

With this experience in mind, Rashid has divided Unimed Surgical into a number of notionally independent enterprises registered separately in the names of each of his three sons. The primary reason for this is to ensure that, if there is a falling out between his sons, each would have a separate operating firm (i.e., with separate clients and order books) to build up independently. Nevertheless, Rashid deeply values cooperation between his sons. 'For them to survive in the future, they have to stick together' (Rashid 15 July 1994).

While family ties are an important feature in horizontal ties, they are less significant in linkages between producers and their subcontractors and suppliers. Only seven firms (12 per cent of the sample) report family members running separate subcontracting units or working as suppliers to the cluster. Of these seven, six are small enterprises of which a number were themselves formerly subcontractors. The seventh is a medium-sized firm that helped set a poorer cousin up as electroplating subcontractor. Such assistance reflects a power relationship within the extended family. In contrast to horizontal relations between producers, ties between firms and their subcontractors are not only hierarchical in production, they are also socially hierarchical. They are often paternal in nature, with power very clearly vested in the firm. Similarly, such familial and paternal relations also apply to apprenticeship linkages. Teacher-apprentice (*ustad-shagird*) tend to be very close, being formed over a number of years of training. Thus many firm owners (particularly among small concerns and subcontractors), with apprenticeship ties to other firms, see their place of learning in much the same way as they would their parental home. As one respondent said 'we learnt our skills working in Moghul, we continue to have the greatest respect for them, they are like our father in a way'.

Sialkot's entrepreneurs are often related to each other, either directly through blood and marriage, or symbolically through the paternal links associated with apprenticeship. While the family usually constitutes the firm's internal management structure; family ties, both real and notional, also influence horizontal relations between firms in Sialkot's surgical instrument sector. Despite extensive local rivalry, there is a thick cord of family ties that bring competing producers together. These bonds are significant at a looser, but no less important, level of cooperation -such as sharing certain types of information, tackling common problems, taking common positions in the trade association, and in defining the limits of competition. Family ties are, however, less significant in vertical ties. Among

large and medium-scale firms it is more common for family members to set-up as 'independent' entrepreneurs, with their own surgical instrument manufacturing enterprises, than as independent suppliers or subcontractors. Social hierarchies clearly demarcate backward linkages. Yet social networks do operate at the level of vertical ties, particularly with suppliers and subcontractors? In these relationships both firms and subcontractors are most exposed to the threat of opportunism by the cooperating party. How can cheating be stopped, or at least be effectively policed? To answer this I turn to the third layer of Sialkot's social networks: local reputation.

c) Localness and Local Reputation

Obligational, as opposed to arms-length, relationships in inter-firm ties are more easily built if firms deal with a few as opposed to many actors in each given process, if they know their suppliers, subcontractors and buyers well, if the relationship is cemented over time, and if there is extensive interaction between the two parties (Sako, 1992). Face-to-face relations, a history of repeat transactions, personalised and affective ties all serve to smoothen and strengthen vertical production ties. This leads to an element of economy: search costs are lowered, a common code of understanding is built up of each party's working practices, their strengths and their weaknesses; all of which improve reliability; and enhances the scope for mutually-advantageous technical interaction.

Such long-term association and familiarity is further supported by being part of a local community. Mutual dependency and trust by each party on the other, and a commitment to the relationship in the form of support, adaptability, flexibility and mutual learning, is underlined by social ties based on local connections. Localness can strengthen production ties through the provisioning of social and economic reputation. Reputation carries weight within the cluster. The credentials of an agent to undertake a task honestly and on time can be established through the local grapevine or social knowledge bank. Being local provides access to an informal collective social knowledge bank regarding the social and economic reputation of other agents within the cluster and the community. 'Knowing and being known' locally, is a critical part of the social capital of the cluster where the costs of failure or default on the part of an interacting agent can be extremely high for the other partner.

Being a local from Sialkot is considered essential for a manufacturing unit to survive in the cluster and compete internationally, reported by two-thirds of sampled firms. As one respondent said 'In Sialkot everybody knows everybody. You know who they are, their family backgrounds, even the scandals linked to them. That is one of the advantage of this place because you know exactly who or what you are dealing with' (B. Khan 29 January 1994).

Few outsiders can survive in the surgical instrument cluster. Only one firm has no local roots. Kohinoor Surgical, is the exception that proves the rule that- 'only a Sialkoti can prosper in the

industry'. Part of a large Karachi-based, multi-sector, industrial group, Kohinoor located in Sialkot in order to enter the industry. The firm's holding company is non-Punjabi, although Kohinoor's senior management are Punjabis, albeit not from Sialkot. Not only has Kohinoor adopted similar manufacturing and organisational practices as found in other medium to large firms in the cluster, it has also had to become 'Sialkoti'. As the General Manager emphatically stated

'even though I am not originally from this area, after living here for over 10 years, having built my house here, educated my children here, this is my home. I have no other home. **I am a Sialkoti now. This is where I will live and this is where I will be buried.**' (S. Tariq 16 July 1994 respondent's emphasis).

It would be hard to find a clearer statement of being socially embedded.

Kohinoor has been 'accepted' within the cluster. Its General Manager has acquired the attributes of what, in Sialkot, constitutes a good reputation: honesty, hard work, quality-consciousness, timely payments, a hands-on involvement in production, and social and religious probity. A recognition of this is the fact that he has twice been elected to the governing council of the trade association. To get to this position, Kohinoor had to spend the first five years of its operation in Sialkot getting to know the system and familiarising itself with local suppliers and sub-contractors. As the General Manager explained 'during that time there were many losses. We had to get to know the suppliers and the makers, who was reliable and who was not, and they had to get to know us and our business practice' (ibid.).

All but two subcontractors sampled are locals from the Sialkot area. Similarly, all workers employed by firms and by subcontractors are from Sialkot. What is critical about being a local is that if you are from the area then you are known and know others. A local can tap into the bank of social capital residing in the cluster. This provides the collateral necessary for local agents to enter into transactions with each other. Three-quarters of all firms sampled reported that they considered it important to their success that those with whom they are dealing were known well. Long term knowledge and repeat transactions are equally important. Of the firms sampled, two-thirds had known and dealt with their workers for over five years, 70 per cent had dealt with their input suppliers for over five years, and 72 per cent had known and been selling to their buyers for over five years.

Reputation is particularly important at the level of ties with subcontractors. Producers tend to deal with only a handful of subcontractors in any given process. This allows for strong, long-term relationships to be built-up. On average, subcontractors had been engaged by sampled firms for over a decade. Over 90 per cent of firms knew most, if not all, of their subcontractors well. Producers knew where subcontractors worked, their production facilities, the type of operation they ran, and had a good knowledge of their professional reputation as well as of their social and family backgrounds.

The importance of established ties with subcontractors is underlined by the elder brother of the management team in Unique Surgical, who pointed out that

‘old makers [subcontractors] are reliable because they are known parties. New makers are only picked after careful selection, we have to get someone's references about new makers before we give them work. With old makers trust is very strong, they produce good quality work on time. They deliver’ (S. Ahmed 9 December 1993).

On the whole, the relationship between manufacturers and subcontractors is reported as ‘close’ by both parties. Only 11 per cent of manufacturing firms described ties with subcontractors as purely commercial. Instead, for 62 per cent these ties are considered friendly, mutually co-operative and good. Some producers (a quarter of those sampled) even describe ties with subcontractors as fraternal and familial indicating an element of paternalism. This often occurs where subcontractors were former workers or apprentices of the client firm, or where the firm owner and subcontractor had previously worked together. A similar pattern emerges from the subcontractors' perspective, with two thirds of sampled stage units describing ties with manufacturers as friendly and good. Linkages between firms and subcontractors are thus far from anonymous and impersonal market based transactions - they are highly familiar and built over an extended period of working together.

Behind the expressions of mutuality and closeness, it has to be remembered that relationships between subcontractors and parent firms are highly unequal, both economically and socially, the scales usually being balanced in favour of the latter. Firm owners rarely view subcontractors as social equals. Subcontractors, while they usually have direct access to the owner of their parent firm, rarely share the same social spaces. They tend not to live in the same areas, eat in the same restaurants and cafes, or send their children to the same school. Inter-marriage between these two economic groups, due to the differential wealth status, is unusual. Where there is social inter-mixing by subcontractors with local producers, it is found with owners of small firms, often enterprises which until recently were subcontracting units, or with those with whom earlier ties of friendship and working together exist.

Thus, in most cases, there is a clear patron-client relationship between parent firms and their subcontractors. The latter are largely dependent on the continuing goodwill and support of the former in order to survive and prosper. Such ties are often reinforced by familial links built through periods of apprenticeship undertaken in the parent firm, and through the financial and technical support that parent firms provide to the subcontracting unit. Furthermore, close links with producer firms can help subcontractors access productive and non-productive resources. Parent firms often provide subcontractors with space and equipment on a rental basis. In such situations, while subcontractors are sometimes free to take on work for others, the parent firm always gets priority in such relations. Credit and cash advances are often provided by producers to subcontractors to cover costs of input and other materials, and occasionally to obtain equipment.

Another aspect of the patron-client dependency is seen in patterns of credit relationships. Subcontractors, having built a long-term relationship with a particular producer, often turn to that firm for consumption credit to meet costs of, for example, marriages, illnesses and health care. Such ties of patronage are reflected in the comments of an owner of one large firm:

You see when they [the subcontractors] marry their daughters who else can they turn to but us [firm owners]. I help out by giving money to cover the costs of the wedding, and gifts and so on. You see, their daughters are also in some ways my daughters, so if I can then, God-willing, I will and I must help as if it is my own family. Look, they are also humans. You need to have a soft heart. After all, by helping them I know that they will respond when I ask them to get something done on time (M. Sami 22 February 1994).

Close ties do not emerge in isolation. They are embedded in local social reputation. Reputation not only of the firm's and subcontractor's ability to deliver on schedule or its technical skills, but also of the standing of the firm owner (or the skilled artisan) within the community as a whole. Business transactions impact on social relations, and social relations on business relations. Thus although *biraderi* and family in their own rights do not appear to provide the institutional mechanisms for regulating vertical contractual relations, they are an aspect in the way in which firms view each other. A good reputation, both in social and economic, is a valuable asset. Information flows easily about the capabilities and capacities of the different actors within the cluster, lubricated by the thick oil of local ties. Social networks built around localness, long-term ties, reciprocal relations, and strengthened by knowledge of *biraderi* and family background, provide the mechanism for regulating contracts and sustaining production networks. The sanction to agents for breaking contracts is a loss of reputation, both economically and socially. In the narrow confines of the cluster, such a fall from grace become rapidly and widely known, threatening the prospects of further contracts.

Nevertheless, local competition can push social ties to a point where they may break. As mentioned at the outset, rivalry is intense in the Sialkot cluster. This is especially so at the level of marketing. Price competition, various forms of local 'industrial espionage', and attempts to poach clients from each other is not uncommon. In response to such competition, extensive measures are taken by cluster-based producers to restrict marketing and price information. The difficulty of suppressing information from local rivals is, for some firms, a disadvantage of being located in the cluster. Similarly, visits by local manufacturers to another firm's production facilities are frowned upon. As many respondents state 'it is not the practice here to show the factory to others'. Where visits are allowed, they tend to be restricted to close friends or family, i.e., to those considered trustworthy.

In spite of attempts to control information, knowledge flows freely in the cluster. For example, although Unimed Surgical claimed that it was one of only two firms in Sialkot producing TC tip instruments, I came across seven firms in my sample manufacturing similar instruments. Again,

exchange of technical knowledge is more pronounced among those with whom producers have close relations. As one respondent stated 'normally we don't discuss things with each other, but if you are in good terms with somebody, then maybe, yes, you may share information' (N. Amir 22 February 1994). Information is shared between producers in business and social settings, from restaurants and offices to social gatherings. The nature of information varying from cluster gossip about how other producers are faring, to background information on sub-contractors, export information and trade practices abroad, and discussions on the effects of government policy.

In summary, social networks, shaped around the distinct, and interwoven, identities of *biraderi*, family and being locally located, are clearly important to the manner in which the Sialkot surgical instrument cluster operates. Each of these social identity categories provide distinct forms of social capital, and serve to reinforce particular types of production relations. The concluding section discusses further how the basis of social networks have changed in Sialkot.

6 Conclusion - The shifting basis of social networks

The puzzle in the industrial district model is understanding how local competition co-exists with local cooperation. The argument put forward is that social networks can help explain this conundrum. Industrial districts are fertile ground for transaction costs, arising from information asymmetries, bounded rationality, and the fear of opportunistic behaviour. Networks provide one way in which such transaction costs can be mitigated. Network arrangements involve long-term and recurring ties in which agents project and protect their reputation for hard work, quality, and good business behaviour. Reciprocity and reputation are critical for production networks to function. Within the district, an agent's reputation is both economic and social, the one working on the other. Local social networks can deliver valuable social capital, consisting of both technical and personal knowledge of the industry as well as of the reputation of local firms, suppliers, traders, artisans and workers. Reputation influences with whom, and how, agents interact. It also implies high 'social exit costs', in the form of loss of reputation and social honour, for failing to meet contractual obligations.

Social networks can also provide the conduits for the flow of socially embedded technical knowledge as well as reputational information on local agents. As Barr (1996) has noted networks that ensure regulation may not be best placed to encourage information flows. Social networks are also evolving, being changed by the very economic processes that they influence. However, social ties are often difficult to discern and measure. Furthermore, social embeddedness can enforce barriers to entry of new ideas, potentially weakening the ability of local actors to respond to exogenous developments, and can reinforce existing power asymmetries.

In the context of Sialkot, where local producers compete in high quality global markets, it is proposed that social networks help mediate the boundaries of acceptable competition and encourage local cooperation. Local joint action, which has resulted in cluster-wide benefits, has been central to the cluster's success. The discussion above has shown that social ties, at some level, are important to the way in which various agents relate to each other in the Sialkot cluster. It is also clear that the importance and effectiveness of the specific social identities relevant to production ties in the surgical instrument cluster, namely kinship, family and localness, are changing. Moreover, it is apparent that social ties do not always operate in a uniform and unidirectional fashion strengthening productive ties.

Biraderi was central to the way in which the cluster developed, especially the manner in which knowledge of metalworking was transferred. The importance of *biraderi*, as a historically sedimented category defining social linkages within the cluster, and providing a bank of socialised technical and occupational knowledge, appears to have diminished with time. It continues to remain important, but mainly in the realm of social relations, especially in marriage ties. Families help explain how firms are organised, and often how they relate to each other. Family ties can account for varying degrees of loose inter-firm cooperation at the horizontal level. Nevertheless, family bonds are not always strong enough to ensure cooperation across and within firms, nor do they appear to influence ties between firms and their suppliers and subcontractors. Localness provides a key basis for reputational effects that regulate ties with subcontractors and suppliers as well as providing access to sector-specific technical knowledge. Being known by, and knowing others within, the community of surgical instrument firms is considered critical to survival in the cluster. It provides a material basis for social and business reputation. 'Knowing and being known' locally provides the basis for production networks to operate locally.

Yet, even the bonds of being local may be vulnerable as the cluster develops and external actors (such as buyers and foreign producers), with whom local manufacturers share no social ties, gain influence.

Sialkot's surgical instruments producers are increasingly facing pressures to adopt international quality control and assurance standards in order to retain a presence in the highly competitive high quality markets of the West. This requires changes. It is a more difficult task than simply acquiring new technologies. It implies reorganising production and acquiring a new quality-driven set of production values at each stage of production. External clients become a key information source, the eyes and ears on the international market, and the enforcer of quality control standards. This implies a need for stronger social bonds among agents with whom Sialkot's producers have no prior local experience. As with backward linkages, ties with buyers tend to be close and built over time. Long term recurring contracts have to be actively constructed and nurtured before trust can take shape. As ties form between producers and external agents they also take on a social dimension. This is captured, for example, in the friendship forged by the young head of SurgiPak Instruments and the

local (Sialkoti) representative of the US kit-packing firm Ameritrade. By building these social links, the owner of SurgiPak Instruments is keen to ensure that Ameritrade considers his difficulties favourably and helps him confront the new challenges. In a similar vein, the head of the small to medium sized firm, Unimed, considers one particular German buyer as his technical 'guru' for helping him acquire the technical know-how (not just the technology itself) to upgrade his product line. This is a long standing relationship, steeped in social respect and friendship bonds between the two parties. Even the joint venture partnerships with foreign firms which have emerged in Sialkot, or are currently being negotiated, also require a social aspect to cement them. Bonds of friendship and support, involving trips to each other's facilities, gift giving and extension of hospitality, have to be formed for partnerships across cultures and borders to succeed. This does not mean that local social networks, based on being local or being part of a family, are likely to disappear. It does suggest, however, that new ties with agents who lie outside of the cluster are likely to gain in importance both in production relations and socially.

These observations appear to support Schmitz's (1995a, 1997) view that ties in local social networks shift from an 'ascribed' to an 'earned' basis. In Sialkot ties of kinship and family lineage, 'gemeinschaft', are diminishing in importance while those based on long-term business transactions, especially with external agents, 'gesellschaft', are becoming more strategic. However, the Sialkot experience goes further and suggests that distinguishing between ascribed and earned in a sharply binary fashion, eludes two key, and interwoven, points. First, that there are important interconnections between earned and ascriptive ties. Second, that different ties provide different sets of 'services', and that the relative weights attached to these services change as the cluster evolves.

What does this then mean? It means the following. Aspects of ascriptive ties and local social linkages remain important to inter- and intra-firm organisation within the cluster, even when earned ties are in ascendancy. Earned ties are supported and reinforced by ascriptive social relations, which in the case of Sialkot means that economic and business reputation is embedded in a social context, in an awareness of each agent's family and kin background. Thus, it is not just that 'business is business and family is family' in Sialkot, but that it is also a case of 'business is family and family is business'.

The other point is that social networks are important, not in themselves, but in terms of what they **do** for production relations within the district. Different social ties provide different types of support to the production network. As suggested earlier, social networks merit study in the context of districts because they can potentially provide mechanisms for the regulation of inter-firm relations, and in their role of information banks that aid the process of local knowledge flows. At particular stages of the evolution of the district different aspects of these 'services' provided by social networks take primacy. For example, during earlier stages regulatory functions may well be more critical in that they provide the rules and codes for governing inter-firm relations. Once these have been inculcated into the

workings of the systems, or have been reinforced by contractual law and formal business practices, the emphasis may well shift within social networks to the flows of information. This is likely to become increasingly important in an environment where producers cater to demand driven global markets where access to up-to-date marketing information and technical know-how is increasingly necessary to sustain competitive edge. If that is the case the types of networks, and social ties, that aid the flow of such information will gain in importance within the cluster. One is beginning to see elements of this in the Sialkot cluster with the weight attached to ties with foreign buyers, ties that are increasingly being given a social content. Even within the cluster, social and productive ties that facilitate technical development, learning and information are of importance. This is especially so in an environment where market provisioning of information and technical know-how is weak.

However, I would argue that this does not mean that social ties that reinforce regulatory mechanisms will atrophy in Sialkot. This brings us to the first point above, of interconnections. Regulatory functions remain important, and provide the basis for information flows, learning and knowledge development to take place. Whilst in the emerging production relations within the cluster, formal contractual obligations (and international law) will increasingly govern ties between local firms and their global partners, such ties will continue to have a social dimension to them. Furthermore, in the production relationships that firms will continue to have with other local agents within the cluster, socially reinforced and socially acquired reputational factors will continue to command a premium.

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