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Social Capital and Industrial Transformation

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This paper is an exploration of the social capital needs of industrial development. ‘Social capital’ attracts considerable attention in socio-political analysis and we are beginning to see its application to development economics. There has not, as far as I know, been any attempt to apply it to the determinants of successful industrialisation in the developing world. This essay is a preliminary sketch of the concepts rather than a report on research findings or a complete analysis with specific policy recommendations. Nevertheless, it illustrates the value and significance of bringing social capital concepts to bear on specific aspects of development

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¹ I am grateful to Khalid Malik for encouraging me to undertake this foray into a new – and very important – field, and for his comments and suggestions. I have drawn heavily on the survey of the social capital literature by Wagle (2001), and would not have been to produce even this exploratory draft without this.

Introduction

This paper is an exploration of the social capital needs of industrial development. ‘Social capital’ attracts considerable attention in socio-political analysis and we are beginning to see its application to development economics. There has not, as far as I know, been any attempt to apply it to the determinants of successful industrialisation in the developing world. This essay is a preliminary sketch of the concepts rather than a report on research findings or a complete analysis with specific policy recommendations. Nevertheless, it illustrates the value and significance of bringing social capital concepts to bear on specific aspects of development.

The case for analysing social capital *in industrialisation* may need some justification. There is now a general (implicit) assumption in development thinking that industrial development is best left to the market. Many developing countries, most of them highly export-oriented, have been very successful in industrialising. It is presumed that others can follow their lead, though there remains considerable debate exactly how. The dominant (i.e. the Washington Consensus) view, supported and imposed by the leading development and aid agencies, is that the key lies in ‘market friendly’ policies. This means in practice opening economies rapidly and fully to international trade, investment and technology flows, strengthening property rights and removing all policies that affect the allocation of private investment resources. Social and behavioural factors that may affect the process and nature of the (massive) adjustment required of developing economies are rarely taken into account. There is again an implicit assumption that these factors do not matter, or that, if they do, exposure to globalisation and the adoption of market friendly policies will ensure that social norms and patterns of group behaviour will automatically adopt to economic needs.

There is growing evidence that this view is over-simplified and possibly harmful. Economies are not equally equipped to cope with international competition and globalisation. A few certainly do very well, a large number flounder. Take the growing disparities between countries, which is now well known as far as incomes are concerned. Per capita income in the 5 percent of the richest countries was 30 times higher than that in the 5 percent of poorest countries in 1960. In 1997 the ratio was 74 times. *Inequality in manufacturing industry rose even more sharply*. The ratio of per capita manufacturing value added (MVA) in the 5 per cent most industrialised countries to that in the least industrialised 5 per cent rose from 95 to 566 in 13 years from 1985 to 1998 (UNIDO, 2002). This dispersion was also present *within* the developing world. While the five industrial leaders in the developing world did quite well *vis-à-vis* highly industrialised countries (with the ratio of per capita MVA narrowing from 2.3 to 2.2), the ratio for the five developing leaders to the five laggards rose from 42 in 1985 to 261 in 1998.

All the relevant measures of industrial performance reinforce this impression of massive and rising dispersion. Take a measure of competitive industrial performance, manufactured exports. The leading 10 exporters in the developing world (a group of 58 developing countries with sizeable industrial sectors) accounted for 76 percent of manufactured exports in 1985; by 1998 they accounted for 80 percent. The share of the bottom 30 countries in this group fell from 2.2 to 1.3 percent over this period (*ibid.*). In skill and technology-based exports the levels of concentration were even higher. A large part of the developing world was ‘dropping out’ of the dynamics of global industrial activity.

A similar picture emerges from the data on the inputs into industrial growth. Inflows of foreign direct investment (FDI) into manufacturing were highly concentrated, with the leading 10 developing countries accounting for 80 percent of the total. While figures on FDI in export-

oriented manufacturing are not separately available, this is probably even more concentrated (UNIDO, 2002). To the extent that FDI constitutes the engine of globalisation and integration of countries into world production and trade systems, this is a worrying sign. Productive resources and knowledge are more mobile today than before, but where they ‘stick’ depends very much on local economic and social capabilities. National capabilities are very unevenly distributed. Take an indicator of skills as an indicator of economic capabilities: the leading 10 countries accounted for nearly 70 percent of the total number of developing country enrollments in tertiary education in 1997. The leading 10 countries accounted for over 97 percent of enterprise-funded research and development.

These figures suggest that there are major structural forces at work. Theory and evidence suggest that there are pervasive market and institutional failures holding back the supply response of many developing economies (Stiglitz, 1996, 1998). Divergence in economic performance can therefore go on rising. While endogenous growth theory can explain divergence based on cumulativeness, increasing returns and externalities, it assumes that the solution for developing countries is simply to open up to investment and technology inflows. It neglects the fact that investment and technology need strong *absorptive capacities* (below). As such, it over-simplifies the nature of the development challenge facing modern industry in the developing world.

A branch of the development literature has dealt at length with these capabilities and their policy needs in economic terms (for a review see Lall, 2001). It has not, however, considered the equally vital *social capacities* that allow economic capabilities to be developed and efficient policies to be designed and implemented. Without a consideration of the social capital that provides the basic precondition for structural change and policy, the analysis is clearly incomplete. There are also important and salutary lessons for development economists who give policy advice. We often feel that the prescriptions we dispense, based on ‘best practice’ policies and institutions in the developing world, have a rather low chance of success in many countries. Whatever the reason – poor design and implementation, rent seeking, lack of commitment, low skill levels and so on – there is often a strong underlying social capital element. If we ignore these, we are being partial or naïve.

Other papers in this volume deal better with the problems in imposing solutions from outside when local commitment and ownership are lacking. We simply need note that the issues are just as important for industrialisation as elsewhere. Within the industrial sphere also, to quote Malik, “It is time that social groups and social capital be integrated in a broader, more complete framework of the understanding of development” (2001, p. 3).

Concepts

The concept of ‘social capital’ can be a powerful aid to development analysis. In simple terms, social capital comprises the ability of individuals in a group to form relationships of trust, cooperation and common purpose. For Putnam (1993), social capital is valuable because ‘a society that relies on generalised reciprocity is more efficient than a distrustful society’ while for Putnam (2000) its benefit lies in its ability to facilitate collective action. For Fukuyama (2000), the norms provided by social capital promote ‘cooperation between two or more individuals’: in the economic sphere, this can reduce transaction costs, and in the political one it can promote the association necessary for the success of modern democracy. The World Bank’s latest *World Development Report 2002* uses a concept very similar to that of social

capital: 'informal institutions'.² Informal institutions comprise social norms or networks that supplement or supplant formal laws and institutions; where they work well, they can lower the costs and risks of economic transactions, improving information flows and spreading risks.

While the concept and uses of social capital are in sociology, they are clearly complementary to economic analyses. The conventional economic approach to growth deals mainly with physical and human capital and technology. Even when it includes broader factors like capabilities, structure or policies, it tends to neglect the social factors that allow the factors to be used effectively (Malik, 2001). However, it is widely accepted that interactions between groups and social structures, on the one hand, and productive systems, groups and governments, on the other, are critical to economic performance. Countries with similar factor endowments and policies often perform very differently in economic terms because their modes of social and political interaction differ. Or, where policies differ, the transfer of 'best practice' policies from successful economies often fails because the social glue or commitment and ownership that makes them work in some cases is absent in others.

The presumption is that groups or countries with strong social capital are able to function better: members interact more closely with each other, spend less effort on formal methods of enforcing contracts, reach greater consensus on common aims and are able to implement joint actions more efficiently. In economic terms, therefore, social capital can reduce transaction costs, facilitate information flows, lower risks, allow joint action (say, to realise externalities or offer insurance) and supplement formal contracts and property rights.

Social capital is valuable everywhere: without it, the costs of many economic transactions would be prohibitive, even in developed countries with sophisticated institutions and legal systems. However, its value is greater in developing economies. These economies are undergoing difficult structural transformation, economically and in political and social spheres. Many of the institutional mechanisms needed to facilitate the transformation and ease associated stresses are lacking. Markets are not well developed and there is a concomitant need for policy interventions to strengthen them. Rapid technological change, liberalization and globalisation are exacerbating the stresses while reducing the shelter earlier offered by relative economic isolation. In these conditions, social capital can help countries or communities cope better, and facilitate effective government strategy to overcome the market failures that characterise under-development.

This is not meant to imply that *all* social capital is desirable. As analysts have noted, some forms can be discriminatory and harmful to those excluded from the group. Social capital in tightly knit groups like fundamentalist religious organisations or terrorist and criminal groups may be directed to antisocial objectives. Even well intentioned groups can hold traditional values that hold back economic progress and modernisation (World Bank, 2002, 174-6, Stiglitz, 1998). Social capital may become ineffective if groups grow beyond a certain size or try to pursue multiple objectives. In fact, the risk of negative externalities sometimes leads analysts to regard social capital as less valuable than physical, human or technological capital (Fukuyama, 2000). Some economists have also questioned the validity of social capital as an economic concept: it is almost impossible to measure (and so to use as another form of capital)

² On the distinction between formal and informal institutions see Chapter 9 of World Bank (2002). Formal institutions are "formal constructs of governments and modern organisations" (such as legal systems), while informal ones "systems based on social norms or networks ... [that] are a central means of facilitating market transactions." (p. 171). While there is a general trend from informal to formal institutions with economic development, informal institutions remain vital to the efficient functioning of formal institutions even in mature societies.

and it is generally not accumulated deliberately or by reducing consumption. Others have, however, argued that it can actually be defined meaningfully as ‘capital’, despite problems in its measurement.

Many of these caveats are valid. There are clearly undesirable forms of social capital and it is difficult to include it in the usual economic models. This does not, however, mean that the concept is not useful: the existence of ‘bad’ social capital only strengthens the case for analysing how ‘good’ social capital comes into being and whether it can be deliberately created. Problems of measurement do not preclude qualitative analysis: after all, many real and important development issues are of this sort. It is true, nevertheless, that different analysts use the term ‘social capital’ in different ways. In its narrowest (and original) sense, it refers to the very micro level. For instance, the Civic Practices Network defines it as the “stocks of social trust, norms and networks that people can draw upon to solve common problems ... [at the level of] neighbourhood associations, sports clubs and co-operatives” (CPN, 2001). Putnam (1993) extended the scope of social capital to the role of individual connections that allowed more or less effective coordination and cooperation in regional governments. Woolcock (2001) extends it further, noting seven disparate fields where the concept is being applied, one of them being economic development. There is, however, a risk of stretching it to cover the entire institutional, cultural, political and social framework within which economies have to function.

It is not the purpose here to explore the semantics or theory of social capital. Accepting that the lines between social capital strictly defined and the larger cultural or political setting are porous, we confine ‘social capital’ to the norms that permit groups and networks (in civic society, enterprises, institutions and governments) to cooperate, share information and formulate and act towards common objectives. We apply this concept of social capital to one important aspect of development – *industrialisation* – and draw upon the experience of successful industrialising countries to illustrate the kinds of social capital that may be necessary.

Industrialisation and economic transformation

Despite the recent hyperbole on the ‘information age’, structural and economic transformation in developing countries still depends vitally on industrialisation. Historically, all societies that have developed meaningfully have done so by moving from traditional low-productivity activities like agriculture or simple services to manufacturing and high value services. Manufacturing has generally been the engine of the transformation process. The reasons are well known: manufacturing allows greater scope for the continuous application of new technology, yields greater economies of scale, scope and learning, has more spillover effects, and is a major source of innovation and skill formation. It is also a powerful modernising agent, changing work and entrepreneurial attitudes, creating new institutions and ownership forms and raising the productivity of traditional activities. The information age is itself the outcome of technical progress in manufacturing. For poor societies, there seem to be few development alternatives to industrialisation, at least for some time to come. As Malik (2001) notes, economic development entails sustained transformation. To the extent that one critical element of the process is industrialisation, it needs the necessary base of social capital.

Before considering the social capital that industrial development requires, it would be useful to start with the changing setting for industrialisation. Perhaps the most important feature is that, unlike a few decades ago, industry has to be *internationally competitive* if it is to survive and grow and it must do so in the context of rapid, pervasive and continuous technical change. In the past, many governments – in the presently mature countries as well as the

dynamic newly industrialising economies – used such tools as protection, subsidies, procurement and the like to promote local industry. In the early days, high transport and communication costs (with large gaps in information and standards) also provided considerable ‘natural’ protection.

The setting today is very different. Most governments are rapidly reducing interventions in trade, finance and investment. At the international level this is strengthened by new ‘rules of the game’. Production is being integrated across national boundaries under common ownership or control – often at the hands of a relatively small number of large private companies – making it even more difficult to isolate economies from world market forces. Technical change is eroding natural protection. The end result of all this is that enterprises are exposed to global competition with an immediacy and intensity rarely seen before. Thus, competitiveness is essential.

Reaching ‘best practice’ competitive levels within firms involves much more than importing new technology in the form of equipment, designs or patents. Technical knowledge has large tacit elements that cannot be codified or embodied in these forms – the user of the new technology *has* to engage in a process of building new capabilities. This process is often long, costly, difficult and uncertain. It involves seeking new information, creating new skills, experimenting, creating new routines and making mistakes. Firms do not operate in the certain, clear world of neoclassical textbook economics, where there is perfect information (past, present and future), all markets are complete and efficient and the job of the industrial enterprise is to maximise profits mechanistically. They struggle in a fuzzy world of incomplete information, deficient markets and constant uncertainty (Stiglitz, 1996). Their world is rife with externalities, and their learning processes are closely intertwined with those of other firms around them (and sometimes far away). A dense and rich information environment is increasingly the essence of industrial competitiveness.

Needless to say, competitiveness also has stringent requirements at the national and regional level. Governments must provide the right *framework conditions*: security, good economic management, sound and enforceable legal and property rights, transparent and predictable policies, well-functioning institutions and an environment with low transaction costs. They must also mount trade, industrial and technological policies that lead firms to invest in building dynamic capabilities and support them in doing so. At the sectoral level, suppliers of inputs and infrastructure must meet international standards of cost, quality and delivery. Markets for labour, capital and information, along with their supporting institutions, must work reasonably efficiently. At the cluster level, there must emerge strong networks of enterprises willing to combine competition with appropriate collective action. This is the essence of what Michael Best (1980) calls the ‘new competition’

In the ‘new competition’, the nature of competitive activity takes new forms. Low costs arising from the traditional advantages of developing countries, cheap unskilled labour or natural resources, do matter, but are of diminishing importance. Inexorably, such things as innovation, flexibility, reliability, service and quality are becoming more critical. This is as true of developing as of industrial countries. The most successful developing countries are those that have been able to master and build upon new technologies, develop strong technological capabilities and build efficient supply and information networks (Lall, 2001). The determinants

of industrial success constitute a ‘*national industrial learning system*’³ in that the main elements interact with each other in a systematic way to influence enterprise capability development. The system comprises the incentive framework (trade, industrial and technology policies, the macro setting, legal system and so on), factor markets (including skills, finance and industrial linkages) and support institutions. A good learning system stimulates investments in competitive capabilities by firms, embedding them in a rich information environment and providing them the factors and institutional support they need. A weak learning system leads, by contrast, to poor capabilities that do not equip firms to face the competitive challenges of a globalizing economy.

What does this mean for social capital? An industrial learning system able to cope with the new competition needs kinds of social capital not generally found in most developing countries. Social capital is needed to create ‘ownership’ and effective implementation of new strategies and policies: as noted above, building competitive capabilities faces pervasive market failures. Social capital is needed to create new institutions, legal systems and property rights and to facilitate closer interaction between major stakeholders like firms, employees, policy-makers and institutions. It is also needed at the micro level to promote new modes of behaviour within firms and institutions (see below). The emergence of new forms of social capital must, in other words, match the development of new industrial capabilities. Some of these new forms may well arise as a consequence of exposure to new economic incentives and information flows, but others may not. As with capabilities, policies and assistance may be needed to encourage new social norms and relationships. This may prove to be the most difficult part of effective development strategy: it is relatively easy to design or imitate good economic policies.⁴ How well these policies work in practice is another matter entirely, and differences in social capital are certainly one major reason why the response to globalization has been so varied across the developing world.

Social capital needs of dynamic industrial learning systems

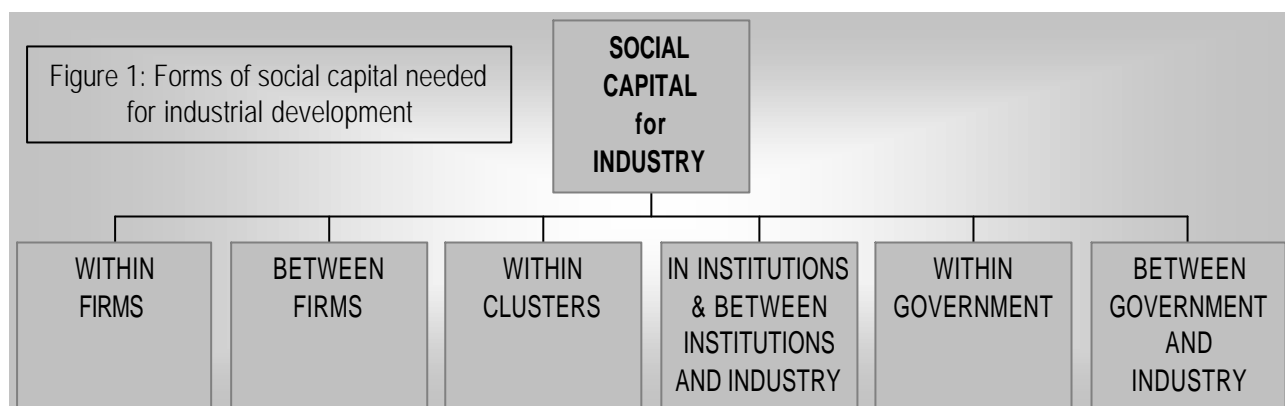
An efficient and dynamic industrial learning system is one in which enterprises are able to access, absorb, master, adapt and deploy in production modern technologies and, over time, develop innovative capabilities. Such a system is becoming the *sine qua non* of industrial success in all developing countries, and it needs social capital at every level. To illustrate, new forms of social norms and relationships are needed:

- ▄ To build the interactions that allow new, competitive industrial capabilities to be developed and deployed by firms
- ▄ To encourage new forms of entrepreneurship based on the use of new technologies and aimed at international competitiveness, particularly in small and medium sized enterprises

³ The concept is similar to that of ‘national innovation systems’ used in developed countries (see Nelson, 1993). However, I prefer to use ‘national learning systems’ to emphasise that developing countries are concerned with mastering and using existing technologies rather than with innovating on the frontier.

⁴ The content of ‘good’ development policies remains controversial but this is not the main issue here: practically all forms of sensible development policy – that is, apart from the extreme version of the *laissez faire* doctrine – need new forms of social capital.

- To strengthen networking, trust and information flows between firms in geographical clusters, value chains and global production systems, and to facilitate closer links between backward regions and activities into the mainstream



- To promote stronger supply and information linkages between large firms and SMEs, and in particular between local affiliates of multinational enterprises and local suppliers
- To strengthen institutions providing financial, skill, technological and marketing support to industrial enterprises and intensify their linkages with firms, again by building new capabilities (within institutions) and improving linkages and trust between them
- To strengthen international networks and links that allow developing country enterprises to link with global markets and technology suppliers, access foreign resources and keep close tabs on the changing market and technical situation
- To improve corporate governance, competition systems and legal systems within which modern industry functions
- To finance the costly and uncertain process of technology acquisition, mastery and development, at and higher levels to finance innovation
- To create government capabilities to manage industrial development.
- To link the government effectively to other stakeholders, create local ownership of policies and to ensure flexible implementation.

We can organise these into the six categories shown in Figure 1.

Within firms: The new technological paradigm has significant effects on the way firms are managed and organised, and on how they create skills and work-systems. There are four main types of organisational change (ILO, 1998). The first is work teams, which “lies at the core of the new systems”, and involves greater group responsibility, broader skills on the part of workers and frequent job rotation. The second is involvement in off-line activities, such as problem solving, quality improvement, health and safety. The third is a flattening of organisational hierarchies, with greater responsibility by shopfloor workers and more intense information exchange. The fourth is links to human resource policies. Work organisation can

only be successful if training and remuneration systems are changed to prepare and reward employees for the new responsibilities.

The use of new technologies, in particular information-based technologies, calls for more, better and newer kinds of skills (ILO, 1998, p. 39). The technological reasons for this are self-evident, but there are also organisational reasons. New skills and norms are entailed in setting up and working effectively with new work production systems. For instance, skills have to be complemented with different attitudes to work, new occupational categories, new work relationships and new management systems.⁵ All developed and successful developing countries are raising the skill profiles of their industrial workforces.

There are matching changes in *management and organisation*. The need to facilitate information flows causes firms, not just to introduce ICT, but also to cut management hierarchies and build new tools to handle information. On the shop-floor, the use of new technologies requires not just new skills but also more continuous training, ‘multi-skilling’, work teams, close involvement of workers in quality and productivity improvement and so on (ILO, 1998). Information technology is now pervasive in new work methods, plant layouts, process control, quality management, continuous improvement, lean production and ‘just-in-time’ inventory systems. Other ICT applications include computer-aided design, manufacturing or engineering, manufacturing and enterprise resource planning, product data management, automation, robotics and flexible manufacturing systems. ICTs are being applied to the automation of design, manufacturing and coordination, so changing the technology of the innovation process itself.

These new systems are not easy to set up and manage, particularly in developing countries. They need not only training and advanced infrastructure – which is demanding enough – but also new systems of contracting, greater trust and openness and new forms of management-worker interaction (Mansell and Wehn, 1998). Information sharing, networking and flexibility are the new weapons in the competitive armoury, with large potential benefits in terms of efficiency, innovation and flexibility. In many developing countries, inherited business cultures are not conducive to these practices. In those with a small base of modern industry and associated skills, new forms of management, organisation and worker training are difficult to adopt, particularly in traditional small enterprises. In those with significant industrial sectors nurtured behind high protective barriers on Fordist methods of organisation and family-dominated management, the change is also quite difficult. Confrontational union attitudes, traditional work divisions, mistrust of new technologies and of management can severely constrain the adoption of new organisational forms.

Between firms: Firms do not learn, innovate or build capabilities in isolation. They rely heavily on formal and informal interactions with each other. The new technological setting strengthens the role of networking and information flows between firms, within the same industry and vertically along the value chain. With greater concentration by firms on ‘core competencies’, there is increased use of long-term supply linkages with suppliers. With the accelerating pace of technical change and skill requirements, firms have to share information

⁵ Thus, “the demand for professionals and technicians has increased in all countries, as their analytical, cognitive and behavioural skills equip them better to adapt to more sophisticated technology. However, even within these high-skilled jobs the trend is increasingly towards multi-skilling – combining specialised professional expertise with business and management skills... [Even for production workers] the trend is towards up-skilling and multi-skilling. A study of 56,000 production workers over an eight-year period shows that skill requirements in production jobs have changed across the board. It is not only that each job has experienced up-skilling, but the overall distribution of production jobs has shifted away from the less skilled to the more skilled” (ILO, 1998, p. 47).

and resources to survive and compete. Even global corporations are contracting out what used to be internal functions, including research and development, to other firms.⁶ Some are going the other way, specialising in R&D and marketing, leaving the entire manufacturing and logistics process to contractors. It is likely that industrial firms in developing countries will have to adopt similar organisational forms, both within their domestic sectors and within global value chains.

Vertical inter-industry relations have always involved dense networks of cooperation and trust, but the nature of networks has changed, and the intensity of interaction increased, under new technological and competitive pressures. The growth of these organisational forms involves new (formal) contractual relationships, but such relationships could only work efficiently if there were a concomitant development of trust, information exchange, corporate governance and openness.

Within clusters: Another organisational change lies in the rising importance of *geographical clustering*, particularly of SMEs (Best, 1990, Humphrey and Schmitz, 1998). The benefits of clusters lie in external economies like access to information and personal interaction, or proximity to pools of skilled workers, specialised suppliers and customers. These economies tend to be cumulative and path-dependent, and can increase the competitive advantages of clusters over time if they are able to keep up with new technologies. Clusters can also attract new technological and skill resources from outside; thus, multinational companies now look for cluster economies in siting production and other activities abroad.

In recent years, the competitive success of industrial districts in ‘Third Italy’, where groups of small firms became world leaders in products like clothing, footwear, leather products and engineering goods, has illustrated the strength of SME clusters. New high-tech clusters are spreading across the developed economies. Efficient clusters are also found in developing countries, and firms located within them have been found to be more competitive than those located outside them. In the new competitive setting, however, effective clustering involves more than just being (passively) located in an agglomeration. It needs deliberate cooperation and joint action by cluster members to identify common problems and find and implement common solutions. This requires vision, trust, information sharing and coherence (along with continuing competition): a very different form of social capital than found in traditional agglomerations in most developing countries.

Clusters do not comprise only SMEs. They are also made up of large ‘lead’ firms surrounded by input and service providers in their proximity. Again, taking such linkages into the new realm of technological dynamism and competitive efficiency often needs closer relations and trust than found under old social and business norms. Where clusters are deliberately formed or strengthened by policy – say, in technology parks – there is a need for

⁶ We can illustrate this with reference to innovation. The rising cost and risks of R&D and pressures of competition are forcing even industry leaders to establish collaborative relations with other firms. “Large firms no longer ‘make’ all their innovation in-house, in large corporate laboratories, but increasingly ‘buy’ in order to keep abreast of the competition. There are several channels through which firms can gain access to the required knowledge... [But] Innovation surveys suggest that inter-firm collaboration is generally the most important channel of knowledge sharing and exchange” (OECD, 2000, p. 32). There are two main forms in which enterprises share in innovation. The first is with enterprises in the *same value chain*. The automobile industry is a good example: major manufacturers involve first tier suppliers in developing new models, expecting them to take on the full burden of designing and developing new components and sub-assemblies. The other important means of collaboration is *between competitors*, within and across countries. The rising costs and risks of innovation drive this trend (particularly in the basic, pre-commercial stages), with strategic alliances and consortia used with greater frequency. Thus, there were some 5,100 strategic alliances formed during 1990-98.

cooperation between governments, institutions like universities or technology services and enterprises.

Without the base of norms, cooperation and trust that allow linkages and clusters to function effectively, the industrial economy would lose greatly. Transaction costs between enterprises would be higher, innovation lower, and specialisation constrained. Small size would be a more severe constraint if SMEs could not cooperate to realise external and scale economies jointly. Formal legal instruments and industrial infrastructure can provide the framework and setting for increased cooperation, but these would be irrelevant if social capital did not evolve appropriately.

Institutions: Industrial development and capability building needs interaction between enterprises and between enterprises and support (or ‘intermediary’) institutions. These institutions fulfil a range of functions. They provide the public goods of industrial activity or innovation, like technical standards or basic R&D that private agents cannot profitably supply. They remedy deficiencies in markets, for instance by providing information and technical assistance or common facilities to SMEs. They also plug specific gaps in markets, say by providing risk capital for technological activity where the private provision of venture capital is under-developed. They provide specialised facilities for industrial training, where economies of scale make it too expensive for firms to undertake particular training in-house. In some cases, institutions are responsible for spearheading innovation or coordinating R&D efforts among private enterprises.

One feature of the new technological setting in developed countries is the increasing interaction between firms and research, technology and training institutions. The outsourcing and specialisation tendencies noted above also apply here. The changing nature of innovation and its growing science (as opposed to engineering) base make close linkages with science institutions (R&D laboratories and universities) imperative. The need for SMEs to keep up with rapid technological change makes it more important for them to interact with extension, R&D and service institutions. Rapidly evolving skill needs and the growing emphasis on continuous skill upgrading of employees makes it similarly important to link up with education and training institutions. And so on. Many institutions charge for their services, often at full market rates, as a result of pressures on government budgets.

This means four things. First, support institutions have to raise their skills, capabilities and facilities to meet new demands. Second, they have to be able to match their capabilities better to rapidly changing customer needs. Third, they have to win the trust and confidence of enterprises, particularly if they wish to charge for their services. Fourth, different institutions have to coordinate their respective services better to avoid duplication and meet overlapping demands more effectively. All developed countries have a large array of industry support institutions, which they are trying to reform and improve. This generally means instilling new values and management methods into the institutions, reorganising them, merging them and sometimes privatising them. The gradual nature of the reform – say, in the UK where it has taken years to strengthen industry-university linkages – suggests that significant changes in values and attitudes are involved. Again, new forms of social capital are evidently needed to create effective institutional networks.

Most developing countries have adopted institutional forms from industrial countries. However, most industry-support institutions function far less effectively. As a forthcoming book by the present author and a colleague (Lall and Pietrobelli, 2002) shows for Sub-Saharan Africa, many are badly staffed and equipped, with inadequate equipment and few incentives to

link to their clients. As a result, they perform their functions poorly, doing little to help industrial enterprises. The latter, in their turn, are unaware or distrustful of the institutions. Technical and economic deficiencies aside, there are also social capital gaps that have to be overcome.

Within governments: The government has, as noted above, a critical role to play in building competitive industrial capabilities. As Malik (2001) argues, it has to set the right policies and to have the capacity “to direct and manage these policies within a broader vision of societal transformation”. Within the context of industrial development, the government also has to set a ‘vision’ of the structure and orientation of industry. One vision may be to leave its evolution entirely to market forces, but this is certainly not the only available option. It can choose to specialise in resource based or labour intensive activities; it can choose specialisation in technology intensive activities within the context of multinational production systems; or it can choose upgrading more autonomously, relying on domestic enterprises. These are not theoretical possibilities. As the dynamic economies of East Asia show, success can be achieved with all these different visions – but they need different sets of strategies and policies. Whichever vision is chosen, the government has to be firmly committed to industrial development; while this may sound banal and obvious, most developing country governments have not shown this commitment. One distinguishing feature of the ‘Development State’ in East Asia was its clear, firm commitment to the over-riding goal of efficient industrialisation.

Once the vision is set, the government has to develop the capability to design appropriate policies and programmes to realise its vision. The vision must, in other words, be translated into achievable goals followed by concrete actions to achieve those goals, a complex organisational and learning process (Lall and Teubal, 1999). It involves collecting and analysing large amounts of information, within the economy and from other countries. It involves deciding and setting priorities: industrial priorities involve most other branches of government apart from the ministry directly concerned with industry. Needless to say, it also involves separating the executive part of the government from the political part.

Once industrial priorities are set, factor markets and institutions have to be directed to meeting the needs of those priorities. To the extent feasible, it also means changing the social capital base to render new policies effective. The implementation of the policies may need new capabilities and attitudes within the bureaucracy; it also needs monitoring of progress and the ability to change policies as circumstances change. In fact, the ability to adapt policies and respond flexibly is probably more important than the ability to formulate complex plans and strategies.

Most governments lack the capabilities and social capital to make and implement industrial strategy. The political leadership and bureaucracy tend to be composed of different interests, making it difficult to arrive at a common vision or priorities. The formulation of policies cutting across traditional lines of authority may be hard, and the coordination and cooperation needed for continued implementation even harder. Finally, monitoring, flexibility and the ability to learn from mistakes may be the hardest part.

All this points to the need for capacities within the government to build coherence, coordination, independence and dedication. This can be seen as a specific – and vital – aspect of social capital.

Between government and industry: Effective industrial policy needs close coordination between the government and industry. The government must share its vision with the private

sector and win its understanding and support. It must collect accurate information on the needs, priorities and actions of the industrial sector to provide the right signals, incentives and support. Industry, for its part, must have clear information on government priorities and plans, and be assured of a voice in policy making. Few governments in developing countries achieve this level of cohesion and stakeholder participation. It calls for considerable trust, sharing, honesty and dedication to a common purpose, all rather at odds with inherited structures of government and attitudes to involving the private sector. The private sector similarly often lacks the internal cohesion to decide on national priorities and industrial priorities, and the trust and attitudes needed to coordinate with the government.

To conclude this section, we have used the concept of 'social capital' broadly to illustrate the kinds of values, norms, attitudes and interactions that industrial transformation may require. The analysis is, of course, tentative and preliminary. It seeks to show that social relationships are relevant to industrialisation and that the compelling need to quickly transform the nature of industrial capabilities makes their consideration more important and urgent. In brief, a strong base of social capital above can offer the following benefits to industry: efficiency, specialisation, innovation, flexibility, realisation of clustering and scope benefits, stronger institutional support, lower risk and more effective policy direction and support.

Some lessons from East Asia

The mature Tiger economies of East Asia, in particular Singapore, Korea and Taiwan, are rightly held up as 'best practice' in industrial development policy. Starting with few advantages, they have achieved world class levels of industrialisation in one generation. More impressive than their rates of growth is the *quality* of their industrial development. Their industrial sectors, while quite different from each other in many ways, have enviable depth, innovativeness and flexibility. Despite differences in strategy and vision, they are based on a strong human capital and institutional base. All the indications are that they have the capabilities to sustain high levels of income and competitiveness in the future (Lall, 2001).

The above discussion would lead us to expect that these economies had, or developed, the kinds of social capital needed to achieve this massive and rapid structural and technological transformation. It is difficult to test this proposition empirically, since there is no meaningful way to measure social capital at the national level. The extensive literature on East Asian industrial policy has focussed on the economic tools employed and the business systems and political economy that lay behind it.⁷ It has not, to my knowledge, addressed the issue of social capital explicitly, though many of the writings touch on particular aspects. In general, the issue is whether the social capital needed at various levels was present in the society or inherent to the culture (the Confucian ethic), or if it grew under force of circumstance or because of government policies. If the former, the replicability of the East Asian experience is correspondingly difficult; if the latter, it is more feasible – if the policy and economic conditions can be imitated.

The greatest gap in knowledge is probably at the micro level. We know relatively little of the social capital base of enterprises, their management and organisation, labour attitudes and so on. The outcome in terms of performance clearly suggests that they were very efficient in accessing, mastering and using new technologies, and over time in innovating products and

⁷ See, for a small sample, Amsden (1989), Ashton *et al.* (1999), Cheng *et al.* (1999), Evans (1999), Jones and Sakong (1980), Lall (1996), Stiglitz (1996), Wade (1990), Westphal (2002), Whitley (1992), and the World Bank (1993).

processes.⁸ The social mobility engendered by massive shifts (e.g. the break-up of Korea after the Korean war, the move of mainland Chinese to Taiwan as its rulers) allowed for an efflorescence of entrepreneurship. The removal of strong land-owning classes and a good base of primary education led to a relatively equitable pattern of development and a broader social commitment to national development. All these may have contributed to a more disciplined, willing and trainable labour force receptive to new technologies. At the same time, labour legislation and practice were repressive, giving considerable power to the employers and allowing a very strong hierarchical set of relationships. We do not know enough about how these relationships are changing as labour relations become more balanced and the emphasis shifts to flexibility, use of ICTs and modern management techniques.

Korea and Taiwan deliberately fostered local inter-firm and inter-industry relations from the early stages of industrial policy; in Singapore, the fostering of local linkages by MNCs came later. The emphasis on autonomous industrial development in the first two Tigers led to strong emphasis on local procurement of inputs and the diffusion of technology to local firms. The Korean reliance on giant conglomerates initially penalised the development of SME suppliers, offset later by a deliberate effort to promote SMEs. Korean SMEs are today fairly strong in technological terms, and the *chaebol* are committed to their development. In Taiwan, SMEs were always in the vanguard of industrial growth and exports, and they formed strong information networks to overcome the handicaps imposed by small size. They also had strong networks with overseas Chinese entrepreneurs and engineers in the USA. Close links with overseas buyers and trading companies were another source of knowledge transfer. The evidence suggests that social norms and attitudes were conducive to intense networking, with considerable collective learning taking place in both countries.

The government promoted the development of competitive industrial clusters in all three economies. It undertook a battery of measures to ensure that new technologies were made available to enterprises on terms that enabled the development of local capabilities (Mathews and Cho, 1999, describe this for the semiconductor industry). Singapore's recent industrial plans have been explicitly based on clusters, identifying dynamic clusters for promotion and striving to fill gaps in the value chain to strengthen and deepen their competitiveness. Korea and Taiwan developed their industries, using protection, subsidisation and other tools of policy (Amsden, 1989, and Wade, 1990), along cluster lines to take advantage of economies of scope and agglomeration. Both set up industrial and technology parks and cities. Both had strong industry associations able to act in the competitive interests of their members, set up supporting technology and training centres and represented them in government bodies. The Taiwanese government set up several innovation groups (called 'R&D consortia') where advanced technologies were absorbed and developed by groups comprising firms, technology institutions, trade associations and the government (Mathews, 2001).

This is all well known. What is difficult to decipher from the evidence is whether the social capital necessary to form clusters, associations and the like were present *before* the policies were launched or if they developed later in response. The likely answer is 'a bit of both', but we need more evidence before we can pronounce with any certainty.

Institutions supporting industry are strong in the Tigers. Each country has the usual battery of technology infrastructure institutions, extension services, linkage promotion bodies, export

⁸ Singapore is the exception here because the major source of management practices and technology lay outside the economy, in the parents of the MNCs that dominated the industrial economy. However, foreign affiliates were able to deploy new technologies so efficiently presumably because of the social capital embodied in the local labour force.

marketing agencies, training centres and financing schemes for innovation. For instance, Korea has a massive programme for promoting technological activity in the national interest by the *chaebol* and other firms.⁹ Taiwan has one of the most comprehensive and effective programmes for SME technology support anywhere (Lall, 1996, chapter 3). Singapore has a superlative industrial training system. Each has excellent ICT infrastructure. Each has created massive amounts of human capital, gearing education to the specific needs of industrial policy rather than simply overcoming generic failures in education markets (Ashton *et al.*, 1999).

While there are certainly deficiencies, and the nature of social norms evolved over time as institutions have become more effective over time, in general these countries succeeded in building strong support systems and linking them with enterprises. Again, we cannot say for sure if the social capital involved in institutional development in the Tigers was present before government initiatives were undertaken and industry grew and competed in international markets, or if it developed concomitantly.

Most academic attention has focused on government capabilities to formulate and implement risky and innovative selective interventions in these Tigers without being waylaid by sectional interests or massive rent seeking. The political economy features of the ‘development state’ in Korea and Taiwan are well studied: leadership committed to competitive industrial development, broad education base, equitable income and land distribution and the absence of strong rural groups. The special nature of the bureaucracy, with its strong skill base, competence and remuneration, relative insulation from politics, pragmatism, speed of reaction to change and harmony of interest with business, has been analysed extensively.¹⁰ There was an early tendency to focus power in the executive branch of government. At the same time, policy vision, coherence, coordination and flexibility were achieved by a difficult process of experimenting, making mistakes, changing and learning. The specific institutional measures adopted were clearly instrumental: the Economic Development Board in Singapore, the Economic Development Bureau in Taiwan and the Economic Planning Board in Korea, for instance, acted as focal points to form policy.¹¹ There may have been strong social capital elements underlying all these efforts, but clearly there was nothing inherent that sprang out ‘ready made’ to guide government policy.

⁹ The Designated R&D Program has, since 1982, supported private firms undertaking research in core strategic technology development projects in the industrial area approved by the Ministry of Science and Technology. It funded up to 50 per cent of R&D costs of large firms and up to 80 per cent for SMEs. Between 1982 and 1993, this Program funded 2,412 projects, which employed around 25,000 researchers at a total cost of around \$2 billion, of which the government contributed 58 per cent, resulting in 1,384 patent applications, 675 commercialised products and \$33 million of direct exports of know-how. Its indirect contribution in terms of training researchers and enhancing enterprise research capabilities was much larger. The value of grants under the Program in 1994 was \$186 million, of which 42 per cent was directed at high technology products like new speciality chemicals. The Industrial Technology Development Program was started in 1987 to subsidise up to two-thirds of the R&D costs of joint projects of national interest (National Research Projects) between private firms and research institutes. Between 1987 and 1993 this Program sponsored 1,426 projects at the cost of \$1.1 billion, of which the subsidy element from the government was 41 per cent. In 1994, the Program gave grants of \$180 million (with 31 per cent going to high technology products), a significant increase from \$69 million in 1990. The Highly Advanced National Project (HAN) was launched in 1992 to support two activities: the development of specific high-technology products in which Korea could become competitive with advanced industrial countries in a decade or two (Product Technology Development Project), and the development of ‘core’ technologies considered essential for the economy in which Korea wanted to achieve an independent innovative base (Fundamental Technology Development Project). So far 11 HAN projects have been selected, and during 1992-94 the government provided \$350 million of subsidies for them. In this brief period, the program resulted in 1,634 patent applications and 298 registrations. See Chapter 3 of Lall (1996).

¹⁰ One of the best analyses of Korea remains that of Jones and Sakong (1980) and of Taiwan that of Wade (1990). For an excellent comparative analysis see Evans (1999).

¹¹ However, Cheng *et al.* (1999) remark on the fluidity of the administrative structure in Taiwan dealing with industry, with several different organisations dealing with industrial promotion. In Korea, the military government favoured much greater centralisation.

Evans (1999) makes the strong point that the ‘myth of the super bureaucracy’ in the Tigers can create undue pessimism in other developing countries concerning the replicability of their development strategies. After describing the difficulties the former faced in building their government apparatus, he concludes that all governments have “something to build on” if they start modestly and focus their efforts on the most important tasks at hand (p. 80). They can clearly learn from the procedures and forms adopted in East Asia, where progress was also often hesitant. However, he does not under-estimate the difficulties involved in countries with massive income inequalities, non-development minded elites and the limitations imposed by the new rules of the game.

In terms of the present analysis, the evident conclusion is that certain elements of social capital *can* be fostered by policy and do not have to be present before strategies are launched. Moreover, of the important preconditions of East Asian success – equity, education, leadership commitment, bureaucratic independence and so on – some seem to be predominantly economic or political in nature. What is not clear is that they also contain social capital requirements. Does the achievement of greater equity, the popular desire to invest in education or the isolation of the bureaucracy from political forces reveal underlying social norms? Can the government coordinate well with business only where certain forms of personal interaction are well established? Or can we simply ignore the social aspects altogether on the assumption that they will fall in line once the economic and political conditions are in place? If not, which social norms and relationships are the really crucial ones, and what affects their development?

We do not yet know. And until we do further research on these vital questions, we cannot draw proper policy conclusions from East Asia, or indeed on industrial development more generally. It is frustrating for a development economist to say this after working so long on industrial and technology policy, but there we are.

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