

Eric A. Charest

**Using the social capital of
nationals abroad as a strategy
for development in the IT sector**

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International Institute for Labour Studies
Geneva

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Preface

This Discussion Paper contributes to the International Institute for Labour Studies' work on the "*Internationalization of labour markets*" under the more general theme of "*Decent work and development*". Research in this area aims at better understanding the relationships between mobility, employment and development; at shedding light on links between the internationalization of labour markets and the geographical shift of production; and at theory building concerning the parameters that affect the development impacts of migration. Among other things, the question is asked why some international labour flows produce positive externalities in the migrants' countries of origin (such as the creation of new industries and more jobs) while others lead to negative externalities (such as a lack of essential skills and lower productivity) and what conditions have to prevail for positive outcomes to occur.

This Discussion Paper examines the relevance of social capital theories in explaining the migration-development nexus. The author uses three case studies to investigate this relationship, namely developments in the information technology (IT) sector in China, India and Taiwan (China). There are booming IT sectors in all these economies; these are important source regions of highly-skilled migrants; and they are all well represented in Silicon Valley which is considered to be the most important hub in the IT sector worldwide. The paper focuses on three distinct sources of social capital: trust, reputation and networks, and finds that social capital theories can indeed contribute to explaining the migration-development nexus -- at least as far the IT sector is concerned. Migrants take part in the creation of links between sending and receiving countries and facilitate the development of relations based on trust between firms. Migrants do not only transmit factual business and technological information; they also serve to transmit more subtle information that would be hard to find through official channels, such as tacit knowledge about the quality and level of education in the migrants' country of origin. Their personal characteristics and qualities can play a role in building the reputation of their home country, helping to counter the "newcomer effect". Migrants' cultural know-how that enables them to work in both countries makes them strategic players in globalized markets. The author also discusses a number of policy options that States have to maximize the benefits of their nationals' social capital, such as to create optimal conditions for investments; keep in touch with networks of migrants; and help diffuse information.

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Geneva, June 2007

Gerry Rodgers
Director
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Introduction

In recent decades, the considerable economic, social and cultural implications of large-scale migration for both origin and destination countries have drawn the attention of scientists and policy makers around the world (Özden and Schiff, 2006). It is estimated that some 3 percent of the world's population are living outside the country in which they were born (U.N., 2002). Traditionally, the focus of scholarly analysis tended to be on the impact of migration on receiving countries, often neglecting implications for sending countries. The early critical literature on the effects of migration for sending countries pointed almost exclusively to the detrimental effect for the local economy of the flight of the most educated, starting to describe what is now referred to as "brain drain" (Docquier and Marfouk, 2006).

More recently, the literature on the topic seems to have embraced a more global perspective on migration, one that tries to consider both potential advantages and disadvantages of migration for sending and receiving countries and pointing to the idea that migration should not only be considered as a net loss of human capital for a sending country but could also have a positive impact on the level of development of the sending country. Much research on the topic focused on the impact of remittances for the development of sending countries (Özden and Schiff, 2006). But remittances are most probably not the only form of capital transfer that sending countries can enjoy. As Ammassari and Black (2001) explained we can identify at least three forms of capital transfer, namely: 1- financial capital, 2- human capital, and 3- social capital. This latter form of capital transfer was largely ignored in the literature until very recently but now the scientific community is starting to acknowledge that it could be instrumental in the transfer of all other forms of capital.

Social capital emphasizes the importance for individuals and communities to integrate themselves into formal and informal institutions and social structures which help in the coordination of collective actions and the achievement of shared goals (Bull and Frate, 2003). Concretely, if the goal of local development is shared by many, including international migrants, their adhesions to formal and informal social structures could help the development of that country. The main sources of social capital on which international migrants have an impact are the level of trust, the development of a reputation and the participation in formal or informal networks – investment in these sources results in an increase of the overall level of social capital of the international migrants which in turn can be beneficial for the sending country if it is able to capitalize on the relationships it maintains with them.

This paper will explore the relation that seems to exist between sustainable development and social capital. More specifically, we will investigate the role that the level of social capital of international migrants can have on the development of their country of birth in order to answer the following question: are social capital theories relevant in explaining the migration-development nexus? If so, what could be the implications of such a relationship in terms of State action?

To investigate this relation, we will focus on three national case studies: Taiwan, China and India. We will only consider the information technology sector (IT) to draw our conclusions. We chose these countries for mainly three reasons: they all have a booming IT sector, they are important source countries of highly-skilled migrants and they are all well represented in the Silicon Valley which is considered to be the most important hub in the IT sector.

In the first section, we will give a rapid review of the different perspectives concerning the relation between international migration and development. The next section will focus on the "brain drain" and how the new emphasis on globalisation re-oriented the debate toward the question of brain mobility. We will then continue by elucidating the social capital theories and

the main criticisms that were addressed to these theories. After explaining how one should understand social capital in this paper, we will focus on three distinct sources of social capital, namely: trust, reputation and networks. The fourth section will trace the relations that are postulated to exist between the development of social capital, international migration and development. The fifth section is divided in three sub-sections that correspond to the three case studies. In the last section we will look at different areas of possible State action in order to maximize the alleged benefits of social capital.

1. International migration and development

We tend to think that international migration - flows of people across national borders – can offer an effective means to escape poverty for the individual (Beath, 2006). But it would be overtly reductionist to assume that the process of international migration has mainly individual effects or that the link between migration and poverty reduction is simple or linear. Just like any global phenomenon, the consequences are felt by an increasing number of people who cannot participate in the decision making process, and nations, particularly in the developing world, find themselves being extremely limited in their ability to exercise any form of control on the issue (Craig, 2003).

The neoclassical economic theory assumes that migration will create a positive impact on the labour market of the sending country by easing un- and underemployment (Ammassari and Black, 2001). In developing countries, labour is abundant and capital is scarce, which is the opposite in developed countries. Therefore international migration could help alleviate the differences between sending and receiving states by correcting imbalances (Solimano, 2001): we should expect the wage levels to rise in the emigration country and to drop in the immigration country until equilibrium is reached, at that point we might expect return migration to be initiated. This model has been criticized for its failure to take into account the social, political, and even cultural factors that influence the decision to migrate. We should remember as well that many analysts see inertia as the number one emigration control factor (Martin, Abella and Kuptsch, 2006). Vogler and Rotte (2000) even noted that an increase in emigration might be observed when a state develops.

Ammassari and Black (2001) believe that the link between international migration and development is starting to be recognized by the scientific community with the former being considered both as a dependant and an independent variable impacting on development. Our current understanding remains limited because both migration and development are complex dynamic processes that vary across time. De Haas (2006) identifies two traditional but opposing schools of thought on the issue of the link between migration and development: 1- the developmentalist school which argues that migration leads to a North-South transfer of capital and accelerates the exposure of traditional communities to new ideas, modern knowledge and education; and 2- the structuralist school which tends to be more pessimistic and asserts that migration and concomitant changes, such as growing inequality and individualism, lead to the withdrawal of human capital and the breakdown of traditional, stable communities, creating passive, non-productive communities that become very dependant upon remittances therefore creating further underdevelopment. Nyberg-Sorensen et al. (2002) taking a more developmentalist view, claim that in a globalized world, migrants have to be considered as a development tool for their country of birth – in that context, the traditional concept of the “brain drain”, which implies an international transfer of human capital and expresses a depletion of human capital or the loss of skills from where the migration takes place (Dia, 2004), might be too simple to be completely accurate. To fully appreciate the extent of this idea we must now consider the whole concept of “brain drain”.

2. The concept of “brain drain”

Flows of migration have grown in significance in the current context of global social transformation, bringing the issue of migration to the forefront of both national and international agendas (Castles, 2003). Even though the concept of the “brain drain” with its main assumption that the emigration of the highly-skilled will be to the detriment of the country of origin (Tamas, 2004) is not an exact portrayal of the dynamic processes that link migration and development, it remains a common way to represent them. In a knowledge-based economy, skills are probably the most valuable commodities; therefore any loss of them seems threatening (Dia, 2004). The fact that more and more countries are relying on “quality-selective” immigration policies that imply an immigration system which favours candidates with academic degrees and specific professional skills, has the potential to make the problem of the brain drain even more acute (Docquier et Marfouk, 2004).

There is much controversy about the global effect of the brain drain (Ammassari and Black, 2001) with some scholars putting the emphasis on the detrimental effects of the loss of highly-skilled people thereby weakening the potential for growth, while others claim that brain drain is not as critical as it is usually depicted and might even have some beneficial effects for the sending country - they argue that if the highly skilled were to stay in their home country, they would be under-utilized and they also stress that the human capital investment is at least partially recovered through the remittances sent to the home country by the international migrants.

The core of the debate on the consequences of the brain drain seems to be an ideological controversy that opposes two schools of thought, namely the nationalist and the internationalist (Dia, 2004). 1- The nationalist approach is based on 2 postulates: i- there is an unequal distribution of expertise favouring developed countries; ii- the brain drain is not of equal benefit to the South and the North. The proponents of that approach consider the mobility of the highly-skilled migrants as a loss for the country which has dramatic effects on the social and economic development of the South and perpetuates the pillage of the South by the North. The main focus of the nationalist view is on calculating the loss and on finding ways of preventing or counterbalancing it. The internationalists oppose the nationalist perspective by arguing that migrants play an important role in promoting social and economic development, human rights and political stability. 2- The internationalist approach views skilled migration as benefiting developing countries; the migration process generates remittances from the North to the South and enables the internationalization of science and technology for developing countries. It also enables the integration of developing countries into global networks and constitutes an asset for countries that produce surplus of highly skilled workers. Ellerman (2003, in Martin et al., 2006) referring to the internationalist approach, points to the idea that voluntary migration from poorer to richer places has to result in higher incomes for migrants and globally more economic output meaning that migration has to be evaluated as a “good thing” even if migrant countries of origin are worse off.

The discussion surrounding brain drain is linked to the human capital paradigm identified by Becker in the 1960s (Fourie and Joubert, 1998, in Brown, 2000), which “holds that the educational qualifications, abilities, skills and competencies that an individual possesses represent his/her human capital” (p. 1). The issue of brain drain is meaningful only in an environment of scarce skills that require considerable investment in order to be developed by both the individual and his/her country; therefore, these skills are not easy to replace when they leave the country and this problem is even more acute in the case of developing countries with limited resources (Dia, 2004).

The impact of brain drain can be quite significant in several regions of the globe; it is generally acknowledged that this phenomenon might reduce the economic growth rate of the source country (Lowell and Findlay, 2003) and so has the potential to hurt the non-emigrants (Wong and Yip, 1999). More positively, some researchers argue that the fact that it is easier for the highly-skilled to emigrate could become an incentive for young people to stay in school and pursue higher and more specialized degrees (Vidal, 1998), which would overall profit the country as a whole because not everyone will end up taking the decision to leave the country (Beine et al., 1999; Mountford, 1997).

In the last two decades, evidence suggests that brain drain has increased and continues to be a major concern for developing countries (Carrington and Detragiache, 1999); in the case of most of the African countries, it is frequently referred to as the most problematic issue in the context of migration because of the development implications attached to the phenomenon (Higazi, 2005). It is worth noting that the United Nations (2006) observed that: “small national economies are most vulnerable to “brain drain”, particularly in such crucial sector as health (Higazi, 2005).

Multiple factors, which are often interlinked are identified by Higazi (2005) in order to explain the flight of skilled people from Africa and his theory can also be reasonably applied to other developing countries: low levels of economic growth; corruption; the debt burden and poor terms of trade; the failure of structural adjustment programs, in particular damage caused by structural adjustment through cuts to core services (such as health and education); hasty and unregulated privatization of key infrastructures (such as water, electricity and telecommunications, which all tend to become unreliable and far more expensive); political repression, violent conflicts and unstable political regimes.

International data on the characteristics of international migrants are still limited and heterogeneous therefore making cross-national comparisons problematic (Kapur, 2001); the data might be even more problematic for the migrants considered to be highly-skilled mainly because there is no real international monitoring system on the flows of highly-skilled migrants (Lowell and Findlay, 2003) and no common definition of what constitutes a highly skilled person.

Globally, the Population Division of the United Nations estimated that in 2002 there were around 175 million people living outside of their country of birth (including the undocumented), which represented 3 percent of the world’s population (U.N., 2002). The International Labour Organization (ILO) estimated that 120 million of these 175 million were migrant workers and their families (Taran and Geronimi, 2003). The new preliminary estimate of the United Nations for 2006 is 191 million international migrants with 115 million living in developed countries (U.N., 2006).

When we try to look at the characteristics of the migrants, we have to notice that in so far as South-North migration patterns are concerned, migration rates are higher for people with levels of human capital above those of the general population in the source country (Kapur, 2001). In the case of the mobility of highly-skilled individuals, Docquier and Marfouk (2004) using several different databases, estimated that in absolute terms (the total number of educated emigrants) the largest countries are strongly affected by the brain drain – the stock of skilled emigrants is high in the Philippines, India, China, Mexico and also in developed countries such as the UK, Germany, Canada and Italy. But if we look at the situation in relative terms which implies considering the educated migrants as a proportion of the educated labour force, small countries with a population below 4 million are the most affected with an emigration rate of the educated exceeding 80 percent. Table 1 shows the major source and recipient countries for the highly-skilled expatriates.

Table 1: International Migration of Highly-Skilled Workers

Source countries (%) ¹	Recipient countries (%)
India (26)	U.S. (34)
U.S. (9)	UK (14)
China (4)	Canada (14)
Philippines (4)	Australia (7)
UK (3)	Japan (4)

¹ The percentage represents the proportion of the flow in the respective categories – in the case of India, it means that around 26% of the world's highly-skilled migrants come from India and by comparison, the United States of America receive around 34% of the highly-skilled migrants of the world.

Source: adapted from Beath (2006).

The brain drain seems to be an empirical reality but since the mid-1990s the expression lost its popularity; researchers and policy-makers are now more inclined to talk about a “brain bank”, a “brain trust” or “stored brain power abroad”, a shift that reflects the structural changes that are underway as we enter into a more global economy in which international labour mobility is much likely to play a central role (Kapur, 2001). The idea of globalisation – that should be understood in this context as the process that allows people to cross territorial boundaries in order to constitute an organizational field that connects home and host regions – is central in this paradigmatic shift (Hsu, 2005). This shift in perception justifies the desire of some States to proactively encourage a “brain gain” by giving incentives to highly-skilled migrants to return to their country of origin, migrants who bring with them new skills and experiences acquired abroad (Higazi, 2005).

As Brown (2000) puts forward, it seems almost naïve to think that developing countries can easily compete with developed countries in offering comparable socio-economic conditions that could encourage this return migration; developing countries need a different approach in order to attract back their highly-skilled expatriates or even gain industrial advantages from the brain drain they experienced.

According to Ammassari and Black (2001) the scientific literature on return migration has emphasized mainly two aspects that might have an impact in term of development: 1- return of financial capital, and 2- return of human capital; while neglecting a third form of capital transfer: social capital. In the next section, we will turn to social capital theories as a potential way to understand how nationals abroad can become a tool for development for developing countries. This idea of social capital opens the road to an official recognition of the role played by culture in economic development (Beugelsdijk and Smulders, 2004) but only just as long as we are able to define what it really means and what distinguishes it from other social phenomena.

3. Social capital theories

Social capital became in the last two decades, a buzzword in both the social sciences and in economics. In the case of economics, the concept of social capital is underdeveloped when compared to the concepts of human and physical capital, even though it is usually acknowledged that relationships and social networks which are usually related to social capital, have a non-negligible importance in assuring the cohesion of a society, therefore sustaining economic productivity (Birchmeier, 2002).

As a theoretical concept, social capital has several advantages besides the fact that it permits reconciliation between the social and the economic. First and foremost it has to be understood as a social good (Murphy, 2002) that possesses both an intrinsic value coming from the fact that individuals are usually considered to be social creatures that are not only concerned about material gains, but also with the reputation effects stemming from their actions; and an instrumental value as well: social connections established by a specific individual enlarge that individual's entitlements and can be used, for example, to access new markets (Giusta, 2003). Second, social capital as a social good has unique characteristics that distinguish it from human capital (OECD, 2001): 1- social capital is embedded in relationships and therefore cannot be considered the exclusive property of any specific individuals; and 2- it is the product of an investment of time and energy but the benefits that stem from it can profit individuals that did not participate in its making. In this respect, social capital enables individuals, groups and collectivities to solve common problems. Third, it is usually accepted that social capital has positive externalities that affect the wider community so that costs and benefits of social relations do not accrue only to the person who is building relationships but to every individual that belongs to the group or community (Putnam, 2000). As Evans (1996) summarized, social capital does not require expenditures of scarce material resources in its creation and its stock accumulates with use instead of depreciating which is the most interesting feature of that concept – this characteristic is even more interesting for developing countries where other forms of capital are scarce.

The concept gained popularity in everyday life through the work of Putnam (1993) who tried to explain the different economic performances of Italy's regions by their level of "civiness". According to Putnam, much of the economic backwardness in the world can be explained by a lack of mutual confidence: because close monitoring of every economic transaction would be too costly or even impossible, a society has to rely on some level of trust to support economic and political efficiency; therefore a trustful society should have a better economic performance. Putnam equates the stock of social capital of a community with the level of associational involvement and participatory behavior in a community. The "neo-Tocquevillean" school that emerged in the last years is mainly based on those ideas put forward by Putnam (Bull and Frate, 2003).

This sociological concept borrowed by Putnam and applied to the field of political science is viewed as a "conceptual twist" by Portes (1998). According to him the most fundamental problem regarding such a view of social capital is its logical circularity: social capital is now simultaneously a cause *and* an effect when taken as a property of communities and nations instead of individuals.

In its recent history, the expression "social capital" has become a conceptual umbrella for grouping an amazingly diverse range of social and economic phenomena. The fact that researchers from different academic fields gave different meaning to the concept tends to obscure our comprehension (Beugelsdijk and Smulders, 2004). Fine (2001) puts it this way:

"It [social capital] now assumes a wide variety of meanings and has been cited in a rapidly increasing number of social, political, and economic studies, but – as so often happens with promising new terms in social science – with limited critical attention being given to its intellectual history or its conceptual and ontological status" (p. 99).

Therefore, in order to truly understand the notion of social capital and what is encompassed by such a concept, we will follow Fine's advice and go back to the "intellectual history" of the concept by looking at the seminal works of Bourdieu, Loury and Coleman (Portes, 1998; Portes and Landolt, 2000).

The first systematic contemporary analysis of social capital was the work of the famous French sociologist Bourdieu who defined the concept as: “the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance or recognition”; his treatment of social capital is instrumental, focusing on the benefits accruing to the individuals by virtue of participation in groups and on the deliberate construction of sociability for the purpose of creating this resource (Portes, 1998). Bourdieu stated that social capital is built on mutual obligations and expectations, norms of reciprocity, trust and solidarity (Bourdieu and Wacquant, 1992). For Bourdieu, social capital is just one type of non-economic capital, one which is “focused on the extent of social connections or networks” (Fine, 2001, p. 55) with family relations serving as an archetype that could be paralleled, for example, “in large-scale corporations” (Fine, 2001, p. 55).

For Bourdieu, we should not consider social capital as a natural given but as something socially built through investment strategies (of both economic and cultural resources) consciously oriented toward the institutionalization of group relations that could be used as a reliable source of other benefits (Portes, 2001). As capital, social capital can be “measured”; Bourdieu stated: “The volume of the social capital possessed by a given agent thus depends on the size of the network of connections he can effectively mobilize and on the volume of the capital possessed by a given agent, or even by the whole set of agents to whom he is connected” (Bourdieu, 1986, cited by Fine, 2001, p. 61). This implies that actors can actually gain access to economic resources (loans, investment tips, etc.) through social capital (Portes, 2001).

Loury also contributed to the understanding and definition of social capital. In criticizing the neoclassical theories of racial income inequalities, he stated that most orthodox economic theories have a strong individualistic focus, which distracts from the fact that the social context conditions what an individual might accomplish (Portes, 2001). The simple fact that individuals are embedded in different networks has a direct and powerful impact on one’s access to resources (Loury, 1998); in Loury’s words (1999): “opportunity travels along the synapses of these social networks” (p. 13). In his classic contribution on racial income inequality, which pointed to the fact that one’s attainment derives from one’s social capital and which therefore reoriented the debate toward the potentially perverse impacts of social capital (when there was a strong tendency to only acknowledge the positive effects of that concept), Loury (1977) stated that:

“In a racially stratified society where individuals place themselves in social groups along racial lines, the intergenerational influences for families of different racial groups can be expected to differ. However, racial differences of this sort are not recognized in the traditional economic explanation of discrimination on the basis of individual “tastes for discrimination””(p. 155).

Loury argued that legal prohibitions against employers’ racism would not be enough to reduce racial inequalities mainly for two reasons (Portes, 2001): 1- the inherited poverty of black parents will be transmitted to their children in the form of lower material resources and opportunities; and 2- the lack of connections and information about opportunities of young black workers to the labour market. The inherited social situation of a person and the networks that it entails play an essential role in the determination of the future economic success of that person (Loury, 1999). Therefore the ruling orthodoxy of liberal political theory which imposes that public agents should be “colorblind” – they should deliberately ignore the racial identity of an individual when formulating and executing a public policy - seemed to Loury to be quite wrong and even detrimental for individuals (Loury, 2002).

The American sociologist Coleman is generally acknowledged as the one who refined the definition of social capital and gave to this concept a clearer theoretical framework (Harper, 2001). The classical definition of social capital given by Coleman (1988) goes as follows:

“It is not a single entity but a variety of different entities, with two elements in common: they consist of some aspect of social structures, and they facilitate certain actions of actors – whether persons or corporate actors – within the structure. Like other forms of capital, social capital is productive, making possible the achievement of certain ends that in its absence would not be possible” (p. S98).

Coleman asserts that social capital consists of three forms (Harper, 2001): 1- obligations and expectations which are linked to the level of trust that exists in the social environment; 2- the capacity of information to flow freely throughout structures in order to provide a rational basis for action; and 3- the presence of norms with effective sanctions in case of disobedience.

According to Coleman (1988), the concept of “social capital” enables the reconciliation of two intellectual traditions, namely sociology and economics, “in the description and explanation of social action” (p. S95). The first tradition which characterizes most work in sociology, describes the actor as a socialized creature whose actions are governed by social norms, structures, rules and obligations. This intellectual stream has at least one major theoretical flaw as it tends to be over-deterministic, understanding actors as shaped mostly (if not uniquely) by their environment, leaving them with very few internal mechanisms or resources to give the actors a purpose or a direction for action. In this context, it can be said that the actor is “oversocialized”. The second intellectual stream which is closely related to the field of economics, understands actors as self-interested and always trying to maximize their utility. Actors have the ability to fix themselves goals that they can pursue and which will be function of the actors own interests. The problem with such an approach is the empirical fact that the actions and behaviors of a subject are constrained and redirected by the social context.

Coleman (1988) describes the actor as a rational creature who has control over some resources and interests in others. Social capital represents some aspects of social structures that are a particular kind of resources which can facilitate certain actions. The value of social capital is always relative, which means that what can be useful to accomplish certain actions can be useless or even destructive for other actions.

Examining the work of Coleman, Fine (2001) tried to summarize his ideas about social capital:

“The notion of social capital emerges with disarming simplicity [in Coleman’s work] [...]. It merely represents the extent to which an appropriate solution has been found to the problem of public goods (from which all can consume without cost but none has an incentive to provide unless charging an inefficiently high cost) and externalities (where the actions of individuals have direct repercussion for others). The capacity to deal with these issues reflects a balance between satisfying individual interests and exercising control over them (to prevent free-riding). Once such arrangements are internalised by individuals, they represent norms of behavior” (p. 74).

Coleman’s description of “social capital” can be appealing to many for its parsimonious qualities but the fact that one can easily argue that it is vaguely defined and that it can open the way for a relabeling of a number of different and even contradictory social processes and phenomena as “social capital” is at the very least problematic. For example, Portes (1998) criticized that Coleman included under the label of “social capital” some of the mechanisms that generated it (such as reciprocity expectations and group enforcement of norms); the consequences of its possession (such as privileged access to information); and the

“appropriable” social organization that provides the context for both sources and effects to materialize.

The problem of definition is not the only one mentioned in the literature: probably just as problematic is the emphasis on the benefits of social capital while ignoring its “dark side” (Bull and Frate, 2003; Portes, 1998; Turner and Nguyen, 2005) or its negative externalities (Lall, 2002). In any given society, a dense social capital can produce innovation, political and economic development but it can also create conformism, conservatism and even corruption and illegality; many societies will experience both the benefits and the drawbacks at the same time (Bull and Frate, 2003). Even though we have tended to neglect that “bad” social capital exists, it is not a reason to regard it as less valuable than physical or human capital; as Lall (2002) points out, the simple fact that negative externalities exist strengthens the case for analyzing and understanding how “good” social capital comes into being and works in general or in a specific context.

Another common confusion about social capital concerns the different levels of analysis (Giusta, 2003): while some researchers tend to emphasize the micro level, for example the individual or the firm (Birchmeier, 2002), others focus on a more macro level (the nation state or local governments’ institutions) (Putnam, 1993). At the micro level, social capital refers to the network an individual or a firm belongs to and from which can be derived benefits from knowing others. At the macro level, nations or regions can hold different levels of social capital, which can affect the level of democracy and economic growth (Beugelsdijk and Smulders, 2004). This confusion about the different levels of analysis is probably due to what Lall (2002) identifies as the general presumption about social capital, namely that it is always valuable and therefore it matters little if you consider the individual, the family, the firm or the nation state: social capital is always a valuable economic asset (Evans, 1996) and it is probably even more valuable in developing countries where institutional mechanisms needed to facilitate the transactions between individuals or groups are lacking (Lall, 2002).

To avoid such confusion, it seems necessary to be explicit about the level of analysis emphasized in a particular research project. In the context of international migration, Ammassari and Black (2001) highly recommend that additional attention should be paid to the meso level which focuses on households, web of kinship and other form of social clusters that influence migrants and their mobility. A focus on the meso-level stresses the connectivity of migrants and streams of migration in the wider world of population groups and socio-economic, political and cultural processes. The two main fields of research that are interested in the meso level are (Ammassari and Black, 2001): 1- economic sociology which considers migrants as members of groups and participants in broader social structures that affect their mobility; and 2- migrant networks theories which consider the “sets of interpersonal ties that connect migrants, former migrants and non-migrants in origin and destination areas through ties of kinship, friendship, and shared community origin” (Massey et al., 1993).

Keeping in mind these potential pitfalls, most of them associated with the work of Putnam, several authors tried to define more accurately social capital. Woolcock and Narayan (2000) and the OECD (2001) chose to rely on very simple definitions focusing on the sources of social capital and not on its consequences in order to avoid a tautological statement which is according to Portes and Landolt (2000), the most common problem when defining social capital. The fact that we focus on the sources of social capital does not imply that we do not recognize the potential drawbacks of social capital.

Woolcock and Narayan (2000) considered that, to be acceptable, any definition of the concept should permit the incorporation of different dimensions of social capital and that communities can have access to more or less of them. This “uniqueness” in access that will

characterize different social groups opens the way to a more dynamic and contextualized view of social capital.

In order to avoid the different flaws mentioned so far, while putting the emphasis on the sources of social capital and recognizing the importance of the context and the dynamism of social relations, we will retain the definition of social capital that was proposed by Bull and Frate (2003):

“Social capital is the set of formal and informal institutions existing at a given time between the members of a community. These relations allow the coordination of collective actions and the achievement of shared goals. Social capital, like any other kind of assets, is not distributed uniformly among all members of a community and it is not even used univocally for the well being of the whole community. The features of existing relations and their distribution influence individual behavior and determine the quantity and quality of a community’s economic, institutional and social activity that is of its development. Moreover these relations, though built in one specific sphere, produce their effects also in the other spheres” (p. 145).

We will also take the advice of Ammassari and Black (2001) and concentrate on the meso level of analysis to examine the connectivity of migrants within the group and also the ties that connect migrants with other social groups in their origin and destination countries and the impact of these relationships on development.

The sources of social capital that we will explore in this paper are the following: 1- trust; 2- reputation; and 3- network. In the following section we will explain in depth these three dimensions. We will approach these sources independently even though we know that in a real social context they may not be that easily distinguishable from one another.

3.1. Trust

Arrow (1972) said that almost every commercial transaction involves some element of trust. Trust is often conceived as the key factor that shapes action in every business transaction (Murphy, 2002) and more fundamentally, we believe that all form of group activities involve some level of trust (Lyon, 2003). Trust is usually considered to be “cheap” but crucial if we want to sustain any social relations and ensure future social transactions (Murphy, 2002).

It is generally acknowledged that trust has an impact on productivity and can lower the costs of transactions because trustful individuals or organizations need less to rely on formal institutions to validate their agreements or contracts (Knack and Keefer, 1997; Birchmeier, 2002; Beugelsdijk and van Schaik, 2004). The costs associated with formal coordination and monitoring of the different transactions could easily become overburdening for any organization if there is no form of trust between parties (Fukuyama, 1999; Birchmeier, 2002; Bull and Frate, 2003).

In economical terms, trust can be defined “as the willingness to expose oneself to the possibility of opportunistic behaviors by others” (Schmitz, 1999, p. 141). If we take a more social perspective that takes into account the expectations of the actor, we could define trust as the mutual expectations that arise within a community of regular cooperative behavior based on commonly shared norms (Paldam and Svendsen, 2000, in Beugelsdijk and van Schaik, 2004). The latter definition puts the emphasis on the level of reliability of the actor that has an impact on the predictability of the actor’s behavior but without rejecting the idea that to be in a truly trustful context, the actor needs to always have the opportunity to act opportunistically but for the sake of their relation, decides not to – the actor was not constrained to act the way s/he did, s/he decided to do so. The whole idea of reliability is based on a belief constructed through prior interactions with the actor, and on confidence despite uncertainty and risks that past behavior is

an accurate indicator of future behavior (Lyon, 2003). Bull and Frate (2003) summarized this point by saying that trustful actors “foresee” the future behaviors of others.

Giusta (2003) describes the building of trust as something produced by concrete personal relations and social relations structures that could be defined as networks. This is referred to as the “embeddedness approach”. This approach has concrete implications for our understanding of “reputation”: the typical economic reason for building a reputation is not to lose future exchanges, being able for the actor to continue the relationship. Actors can gain a number of economic benefits from the maintenance of relationship (Giusta, 2003): 1- information derived from past personal relations is cheap to gain; 2- the reliability of such direct information is higher; and 3- the incentives for both parties to encourage future transactions are higher when there is an history of continuing relationship in place. To these economic benefits, we can add at least one non-economic benefit: continuing economic relations become overlaid with social content reducing even more the probability of opportunistic behaviors.

There are a certain number of things that can reasonably be assumed about trust (Murphy, 2002): 1- it is a critical aspect of all network relations; 2- it simplifies the complexity of network interactions; 3- it is a strong incentive to sociability; and 4- it is a “heuristic” governance structure framing the social relationship between individuals or organizations. According to Murphy (2002), trust can be conceptualized on the basis of two different norms of morality: 1- limited-group morality which is restricted to a few concrete people with whom one has close identification; and 2- generalized morality which implies a moral conduct that is applicable to abstract people that are members of a larger group with whom one also identifies. The predisposition of a society toward generalized forms of morality seems essential for socio-economic development.

Fukuyama (1995) found that high-trust societies seem to enjoy unique advantages, for instance these societies tend to have larger corporation in higher technical fields while low-trust societies tend toward smaller, family-owned businesses. Generalized trust implies that a set of ethical habits and reciprocal obligations are internalized by the members of that society; such a society could function adequately with fewer regulations and coercive enforcement mechanisms (Beugelsdijk and van Schaik, 2004). It seems plausible to think that people and organizations operating in high-trust societies will be able to establish trustful relations between them more rapidly.

3.2. Reputation

As we mentioned in the previous section, there is a strong relation between trust and reputation: the good reputation of a specific organization has a direct and strong impact on the level of trust one individual or organizations will have *vis-à-vis* that organization which will usually translate in the development of new relations but also in continuation of previous relations.

In that context, we can understand reputation as a belief based on information stemming from previous transactions and experiences with one particular organization or individual that can have an impact on future relations with other organizations – the implication for any newcomer on a particular market are predictable: there is a strong commercial disadvantage in having no reputation whatsoever because risk-averse buyer will tend to avoid the newcomer (Kapur, 2001). As Hörner (2002) highlighted, competition between firms is in a large measure a competition for reputation. The absence of information concerning a newcomer is a barrier for the creation of new business relations and it is probably even more problematic for firms and institutions located in emerging or developing countries because we often lack clear information about these countries.

A factor occasionally mentioned by economists that also needs to be considered when we talk about the reputation effect is the trade-off that is likely to exist between the short term gain (or saving) in not performing a required action and the long term effect of maintaining a good reputation (Bar-Isaac, 2005). Firms will only be ready to spend money and efforts to keep their reputation if the cost of losing customers exceeds the temporary advantage of cheating them (Hörner, 2002).

Kapur (2001) identifies at least two related reputation problems for firms located in developing countries: 1- the poor performance of several other firms within the country that are considered to be similar create a situation where the individual firm is unfairly “stuck with” an unfavorable reputation – in the absence of direct information concerning that specific firm, a reputational “spillover” effect is likely to occur; and 2- the newcomer effect which seems to be a natural stage for any new firms: it simply takes time to create a good reputation that will eventually nurture the growth of trustful relations between firms. According to Sleuwaegen and Goedhuys (2002) we should not underestimate the power of the reputation effect on the possibilities of growth for a firm because a good reputation has a strong impact on the possibilities to access markets but also resources (human and material). When clear information that works as signals for the market are lacking, reputation and legitimacy become important growth driving factors (Sleuwaegen and Goedhuys, 2002).

It seems that reputational barriers are likely to be more acute in sectors where (Kapur, 2001): 1- the quality is more tacit and ex ante determination of the level of quality required for the product or service is more difficult to do (for example: the development of software); 2- the poor quality of the product or service can result in extreme adverse outcomes (for example: food products and health care services); 3- the difficulties to design contractual mechanisms to mitigate information asymmetries are great; and 4- timely and reliable supply is important.

Another aspect of the reputation effect that is crucial for our analysis is the fact that reputation is likely to be magnified inside a network because of the increased knowledge and number of interactions across members of that network and consequently the higher speed of transmission of information (Combes et al., 2005). The fact that a firm (or an individual) is an active member of a network might have an impact on its reputation. This effect seems to be closely related to the “spillover” effect that we mentioned earlier and which can result from the association of a specific firm to a group of other firms with whom it shares characteristics (for example, they are all located in a specific region). If a firm belongs to an organized network, this can result in an evaluation of the firm based on the information available about all the other firms – the global reputation of the network might be applied to all the individual firms of that network. We can expect strong pressure to conform and sanctions enforced by the entire network against any deviating member because of the potential impact of any opportunistic behavior on the overall reputation of the network (Combes et al., 2005). For a newcomer on the market, joining a network can be an effective strategy to mitigate the newcomer effect.

Some authors noted that international migrants can play an important role in helping to build a good reputation: individually, they can serve as reputation “ambassadors” by simply demonstrating their skills and competences on the international scene (Nyberg-Sorensen et al., 2002), and as a group, diasporas can help diffuse information concerning the quality of the human capital in their country of origin and the local possibilities (Kapur, 2001). As mentioned earlier, this kind of information is often lacking in the case of developing or emerging countries so that diaspora effects can help alleviate the “newcomer” effect in terms of reputation.

3.3. Network

A social network can be defined as a set of actors (individuals or organizations) linked by social relations or ties of a specified type; these ties between actors have both a relative strength

and a content, for instance some shared interest, a particular social origin, etc. (Castilla et al., 2000). To truly understand any network it is essential to examine the structure of the relations held between individuals (Bull and Frate, 2003). We must also consider the “quality” of the network that can either be loose or embedded (Murphy, 2002): where networks are loose, the costs of nonreciprocal behavior may be insufficient to prevent free-riding opportunism, alternatively if the network is deeply embedded in narrow ascriptions, information access may be more easily restricted to the members of the network and relationships outside the network may be cautiously maintained. It is probably necessary to be able to establish equilibrium between these two extreme positions because both could be regarded as non-optimal.

Castilla et al. (2000) refer to social networks as the “social glue” that binds actors together into a coherent system. For Dibiaggio and Ferrary (2003) the decision to join a network should be considered as a strategic move for an individual or an organization: joining a network is an investment decision and actors are doing it mainly because they assume that their benefits will outweigh their costs, enabling them to optimize their interest.

In order to enrich our comprehension of the determinant role played by social networks, we have to take a broader definition of the market as a social institution designed to facilitate exchange between actors; in that sense, networks embedded in any market serve to send signals and facilitate the information flow among participants (Kapur, 2001). Dibiaggio and Ferrary (2003) go in the same direction when they state that economic phenomena are determined by the structure of interpersonal relations. Even in the case of social networks that do not have an *a priori* economic aim (for example a religious group or a caritative association), one often finds that they actually had some influence on economic activities simply because the borders between social and economic activities are much more porous than expected. Granovetter (2005) defends the idea of the interpenetration of economic and non-economic action – the economy is naturally “socially-embedded” and the social structures have profound impact on economic outcomes in terms of allocation of labour, price structure, productivity, compliance, innovation, etc.

In the same vein, even though most migrant networks were not originally intended to foster business relations, they may in fact play a role that should not be underestimated. We know that a majority of migrants will maintain strong relations with their home country; those who seem to have more freedom of choice do return to their country or shuttle back and forth between their home and host country (Ammassari and Black, 2001) and such a behavior can strengthen social networks that are useful in building international business relations. Diasporas are considered as a facilitating factor that helps to establish relations between firms located in different countries – the larger the diasporic network the more efficient it is. Therefore large countries of immigration are more likely to benefit more from the network advantage of diasporas (Kapur, 2001).

The process of globalization that allows masses of migrant workers to cross territorial boundaries while keeping strong relations with their home country gave rise to the concept of transnationalism which can be understood as “the process by which immigrants build social fields that link together their country of origin and their country of settlement” (Glick et al., 1992 in Hsu, 2005). These new forms of social networks that operate through the process of transnationalism can imply new commercial opportunities; in this context, international migration of skilled workers becomes a key factor in order to create these networks. Social networks operating across borders that are created, developed and sustained by international migrants, promote trade through a reduction in the information cost (Combes et al., 2005).

The network approach to globalization has focused on the role of ethnic ties to explain the accelerated growth of cross-border economic transactions (Hsu, 2005). There is now increasing general support in the scientific community that these ethnic networks play a role in

international trade. Such networks are considered as a way to overcome informal barriers to trade by helping to build trust and substituting for the difficulty to enforce international contracts (Epstein and Gang, 2004). The transnational community is seen as linked with the logic of capital expansion because migration takes place in the context of heightened global economic interconnectedness (Levitt, 2001). In the last two decades, the network approach has been applied with interesting results in the field of international migration in order to explain the relation between the mobility of international migrants and different aspects of the development process (Meyer, 2001).

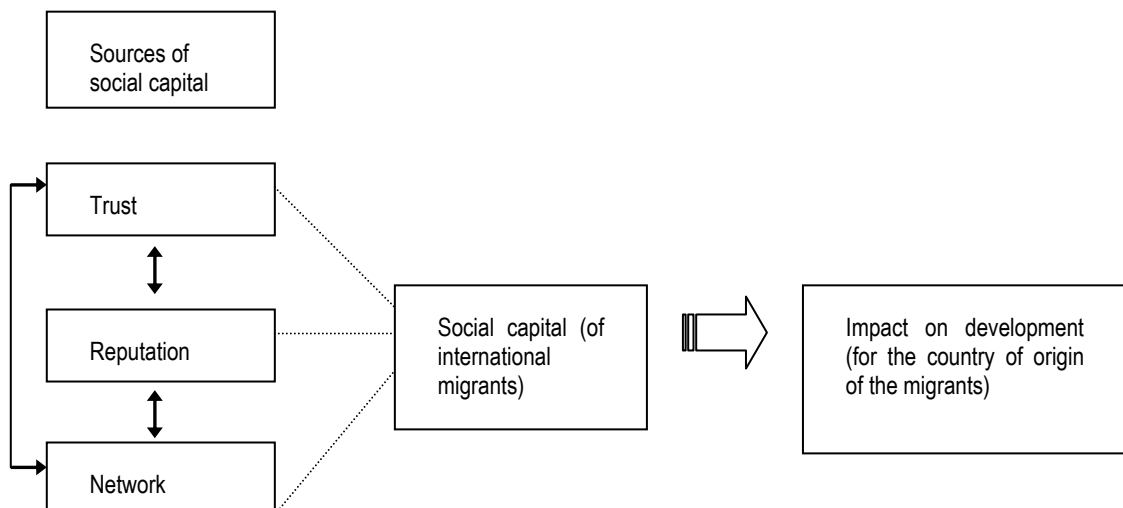
Another point to keep in mind when discussing the usefulness of social networks concern the fact that they are largely associated with the activities of research and development (e.g. the academic world). In the high technology field, it was noticed that networks enhance the capacity of firms to hire essential staff in an acceptable timeframe, to mobilize capital, find relevant and reliable information quickly, and link appropriate actors – a network governance structure could be convenient to coordinate and regulate the behaviors of different firms (Castilla et al., 2000).

Having reviewed these three sources of social capital, we will examine their relations with international migration and development in the next section. Specifically, we will look at the information technology (IT) sector and how migrants, by investing in their social capital, can help their home country to create employment and develop.

4. Social capital, international migration and development in the IT sector

In figure 1, one can see the relation that seems to exist between social capital and development – it should be clear as we have highlighted earlier, that the three sources of social capital on which we decided to focus, are not completely independent from one another. It is recognized that the process of development is linked to social relations as they can accelerate the transmission of market information, facilitate the creation of knowledge in an industry, foster systems of mutual assistance among firms, etc. (Murphy, 2002). In this section we will try to be more specific about the relation between social capital and development in the context of the IT sector.

Figure 1 : Relation between social capital and development



The fact that we are focusing on the sources of social capital instead of its consequences, helps us to avoid making tautological statements which is a problem in various studies on social capital (Portes and Landolt, 2000). We will also focus on the meso level as suggested by Ammassari and Black (2001), particularly the idea of migrant networks which should prove more productive than simply considering the micro level of the individual and how he or she can join a specific network and the impact this might have on his or her career. More specifically, we will look at the social capital among (Lall, 2002): 1) firms within IT industrial clusters; 2) IT firms and supportive institutions (for example universities); and also governments and governmental institutions and IT firms.

In the case of clusters, the benefits that could be encountered are linked to better access to information and personal interactions, or to new pools of skilled workers or specialized suppliers. High-tech clusters are spreading across the developed economies but, more and more, they imply relations with developing countries through the process of offshoring certain operations. To be efficient, these clusters need deliberate cooperation and joint actions in order for cluster members to find and implement common solutions which are obviously related to the different sources of social capital that we identified. As for the social capital between IT firms and supportive institutions, it is well-known that institutions, most of them public, provide to public goods such as technical standards or innovative research and development that most private agents could not profitably supply. The changing nature of innovation which is increasingly science-based make close linkages with science institutions (research centers) imperative because firms need both the human capital developed by these institution and the knowledge discovered.

It has been widely acknowledge that the Silicon Valley plays a predominant role in the IT sector. The Silicon Valley is a huge hub of research and development attracting entrepreneurs, engineers and students from all over the world. Many of these international migrants stay in the Valley after attending one of the local universities – these persons are considered to be a vital international transmission belt connecting the world to the Valley, diffusing technology and market knowledge, sometimes even establishing offshore facilities or helping in the development of successful high-tech districts in their origin country (Cohen and Fields, 2000). The IT sector can therefore serve as a good example of how a developing country can benefit from what was initially perceived as a “brain drain”: migrant scientists and engineers are starting or helping to start new businesses and creating jobs in developing countries, even if they choose not to return permanently to their home country (Saxenian, 2000a).

The number of actors in the IT sector has increased dramatically – this decentralized system requires some coordination by cross-cutting social structures and institutions. The social structure of a technical community thus appears essential to the organization of production at the global level. In the old industrial model, the technical community was primarily inside the corporation. The firm was seen as the privileged organizational structure for the creation and internal diffusion of knowledge, particularly technological know-how. In the Silicon Valley the technical community transcends the firms and knowledge spreads through informal communication or interfirm movement of personnel – the large multinational corporation may no longer be the preferred organizational structure for transferring knowledge or personnel across national borders. An international technological community provides a potentially more flexible and responsive alternative (Saxenian and Hsu, 2001).

With the advancement of transportation and communication and the growth of international trade, a new critical role of middlemen linking businesses in the developed and developing countries has emerged. The international migrants trained in the Valley are the natural actors to fulfill this new role. The factors that shape the role of transnational communities in technology transfer are related to a broader set of social factors that affect the

form and degree of engagement of that community with its country of origin (Kapur, 2001). The three sources of social capital that we have identified are essential if we want to understand this truly complex dynamic.

As we have pointed out earlier any business relation involves some elements of trust which help to lower the costs of transaction. Strong interpersonal relations based on trust are essential in order to exchange complex knowledge (Dibaggio and Ferrary, 2003). In addition trust enables to create efficient industrial clusters. Clusters that are based on trust can facilitate the division of labor between enterprises and increase their level of specialization. This can open up the way for efficiency gains for smaller enterprises which could not be obtained otherwise – this idea refers to the concept of collective efficiency (Schmitz, 1999). This form of industrial organization appears to be common in the IT sector where a multitude of independent actors have a high density of transactions among them, with a concentration of these actors being located in the Silicon Valley. International migrants coming to work or study in the Valley play a critical role: their knowledge of business opportunities and facilities in their home country is an asset for local employers who wish to penetrate these foreign markets or lower their costs by offshoring certain operations. In the context of international technological clusters, it is easy to understand how such knowledge held by international migrants can help to establish trustful relations with foreign firms that would otherwise be neglected by these international clusters.

To consider international migrants (both workers and students) as “ambassadors” of their country seems appropriate when we refer to their role as “reputation enhancer”. Kapur (2001) considers this function of diasporas as one of their most salient: it helps to counter the “newcomer” effect that we have mentioned previously. International migrants can lobby in the interests of their home country (Nyberg-Sorensen et al., 2002); their presence helps to develop a reputation for the firms and knowledge institutions located in their country of origin. In the case of the Silicon Valley, it is starting to be acknowledged that the construction of international technical communities that link diverse countries to the Silicon Valley passes by international migrants who have the language and cultural skills as well as the technical skills to work and function adequately in both the U.S. and foreign markets (Saxenian, 2002). The importance of migrant workers in the Silicon Valley becomes apparent when we look at the data of the 2005 American Community Survey: about 36.3% of the population of the Santa Clara County in California (the county where the Silicon Valley is located) is foreign-born, by comparison around 27.2% of the population of California and 12.4% of the population of the United States is foreign-born (U.S. Census Bureau, 2007). It is estimated that about 30% of the high-technology workforce is foreign-born; of those foreign-born, almost the two-third were Asians and the majority were either born in China or India (Saxenian, 2000a).

A certain level of trust is essential to build the necessary ties that are at the core of any social network, including international technical communities. Social networks help to transmit information and knowledge among different firms and individuals, that could eventually lead to innovation which is at the very core of the IT sector. As Castilla et al. (2000) found, networks enhance the capacity of any firm to get the right product out at the right time so as to help assure their survival and growth. In a more volatile economic environment, flexible producers who can respond quickly to changing market conditions have a real advantage over their competitors. Social networks that seem to have such a strong impact on innovation also have an impact on the mobility of workers: highly-skilled migration in the IT sector means an increased access to external resources for developing countries that are now connected with international technical communities, which creates pressure to strengthen research and development activities in the field of science and technology and to put in place strong educational policies in order to produce the desirable skills that are sought after by the international labor market (Meyer, 2001).

The fact that we now try to understand the relation between migration and development by studying migrant networks and transnational communities of migrants, points to the relevance of the social capital theory as a potential explanation of that phenomenon. In the new context where U.S. American IT firms are willing to look worldwide for technologies and offshore some of their operations, the number of opportunities for foreign-firms is rising and developing countries can also benefit from these. International labor mobility plays a key role in technology transfer to developing countries, especially in terms of tacit knowledge which is much more difficult to codify and transfer through the traditional media of communication; in the process, firms acquire information that enable them to position themselves more strategically on the market (Nabeshima, 2004).

Autler (2000) points out that in the IT sector economic theory alone cannot provide an answer to why some regions are more successful than others in becoming significant players in global technological markets – we have to take into account others social factors. Saxenian (1994) has shown how institutional configurations, industry structure, and social networks are critical factors when explaining why different regions that possess apparently similar factors of production perform differently.

5. Diaspora and IT boom: Taiwan, China and India

We will focus on the cases of Taiwan, China and India in order to understand how communities of migrants can help in the development process of their home country¹.

5.1. Taiwan (China)

Taiwan is considered to be a newly industrialized country and is famous for its entrepreneurship – in fact it has a very prolific SME sector which is highly integrated with the global production sphere (Hu, 2003). Before becoming an important player in the IT sector, Taiwan already had a reputation of being a good equipment manufacturer, contracting for several leading American and Japanese companies (Saxenian and Hsu, 2001). Taiwan with less than 23 millions inhabitants is a high-income country (World Bank, 2007a) that decided very early on to invest massively in education and in research and development. If we look at R & D activities, Taiwan made unusually high investments which probably had a major impact on the rate of development of the country (Lederman and Maloney, 2003). Taiwan stands out for its open economy, resilient small- and medium-size enterprises, very high saving rates and international reserves, high educational achievement and good physical infrastructures (Hill, 2004). In terms of reputation as a source of social capital, Taiwan had the advantage of not being completely new on the market therefore avoiding the costs associated with the newcomer effect (Kapur, 2001). It is noteworthy as well that Taiwanese firms have a reputation of being able to absorb and diffuse new technologies very quickly (Hill, 2004) which can send a very positive message to foreign firms in the IT sector: the socio-technical environment of Taiwan seems favorable for research and development and diffusion of technology. Since the good

¹ Even though we will not look at the case of Israel it is worth noting the work of Autler (2000) on the topic. Despite the fact that Israel is geographically distant from Silicon Valley and has a quite small national market, it was able to develop an impressive IT sector. This case study helps to understand how a country managed to develop some unique assets and linkages with the global IT production system. In Israel, personnel mobility and fluid military-civilian relations have ensured that knowledge and talent can circulate freely. In addition there is a constant flow of market knowledge from the world markets that comes from the connection to international technological networks. These elements help to apply military expertise to civilian products and keep abreast of rapidly-changing technology and demand. Knowledge flows through multinational firms, corporate HQ established by Israeli companies located in the US, and venture capital channels, and is also brought back by Israelis returning from Silicon Valley.

reputation of Taiwan was already somehow established by an history of previous transactions that started after the Second World War, it is plausible to think that the recent vague of international migrants to the Silicon Valley even though they could have help to strengthen this good reputation, were probably less crucial in that matter.

Taiwan invested heavily in education and training, especially in the fields of engineering and science, often in response to the urging of the business community (Nabeshima, 2004). In addition to this national investment in education, we saw, starting in the early 1960s, an important number of Taiwanese who went abroad to study – the majority of them chose to go the United States (Hill, 2004).

Many Taiwanese went to study and work in the Silicon Valley. Saxenian and Hsu (2001) explain the birth of the Taiwanese network in the Silicon Valley by the fact that the Taiwanese saw themselves as outsiders to the regional mainstream technology community. They often felt personally and professionally isolated and responded to this perception of exclusion by organizing collectively. Over time they turned their social networks into professional networks, creating associations that provided resources and role models to assist the advancement of individuals within the technology community. These networks usually organized around a collective ethnic identity and their purpose was to facilitate the professional networking and information exchange. This first generation of Taiwanese in the Silicon Valley built the foundation of what would become a transnational network eventually linking the Silicon Valley to Taiwan. In strategic terms, the construction of these networks is an investment decision made by the Taiwanese abroad in order to overcome the costs associated with being an outsider (Castilla et al., 2000).

Starting in the mid-1980s, one observed many returns of Taiwanese that were trained abroad – these individuals facilitated the technology transfer process and also brought with them new skills to the region (Nabeshima, 2004). Saxenian and Hsu (2001) consider the community of Taiwanese engineers that were trained in the U.S. and who worked in the Silicon Valley as an essential actor that helped build a social and economic link between the U.S. and Hsinchu, which is the high-tech district of Taipei. In fact, the networks of international migrants seem to play a role in the development of successful high-tech districts in their country of origin. Without strong ties developed through international networks, chances are that any high-tech district is doomed to failure (Cohen and Fields, 2000). The fact that the creation of Taiwanese networks in the Silicon Valley helped the transfer of human and material capital is coherent with the theory on the relation between international migration and development as presented by Ammassari and Black (2001) which implies that the development of social capital might be a non-negligible advantage for facilitating the transfer of other forms of capital.

The Hsinchu Science Park is the world's third largest high-tech district (Hu, 2003). We can think of Hsinchu as an industrial cluster – these clusters are often associated with a rise in productivity and innovations (Porter, 1990, in Saxenian and Hsu, 2001). The interdependency created between Hsinchu and the Silicon Valley through this Taiwanese community permits to coordinate a decentralized process of reciprocal industrial upgrading by transferring capital, skill, and know-how to Taiwan and facilitates collaborations between specialist producers in the two regions (Hsu, 2005). In fact, an essential condition for any cluster to be efficient is cooperation and joint actions (Lall, 2002) between different firms most of the times located in different countries, but linked together through trustful social relations usually embedded in networks (Dibaggio and Ferrary, 2003).

An international technical community that transcends national borders enables trustful relations between firms which facilitate the transfer of helpful business knowledge (Nabeshima, 2004). It seems that the establishment of the Taiwanese professional networks was instrumental in building an international technical community for which trust is an essential component. This

kind of work organization – where there is a multitude of small highly-specialized firms that exist within a technical community and they interact in networks – provides a competitive advantage in a volatile business environment where success depends on your speed to answer to market demands.

Policymakers in Taiwan began early on to acknowledge that their famous “brain drain” could become a potential asset for the industrial development of the country if they could develop and maintain relations with this overseas resource. The Silicon Valley-Hsinchu business connection was officially institutionalized in 1989 with the formation of the Monte Jade Science and Technology Association which had as its primary goal to open up opportunities for professionals and corporations at both ends of the Pacific to network and share their valuable experience (Saxenian and Hsu, 2001). In parallel, Taiwan decided to offer a wide range of financial incentives for investments in technology and also put in place an active recruitment policy for the Taiwanese who were educated abroad in order to incite them to return to Taiwan. In addition to the permanent returnees, a growing number of persons started working in both places making several Silicon Valley - Taiwan flights per year. As they traveled between the two regions they carried technical knowledge as well as contracts, capital and information about new opportunities and markets (Saxenian and Hsu, 2001).

To summarize the case of Taiwan in terms of how the development of social capital of its international migrants impacted on its economic development in the IT sector, we have to first note that the creation of Taiwanese social networks seems to be at the very core of the social process. These social networks, initially created to counter the feeling of exclusion in the Silicon Valley, eventually evolved to become professional networks. These networks succeeded in connecting themselves with technical communities which helped to create the necessary level of trust needed to develop and maintain business relations. Since Taiwan already enjoyed a good reputation with foreign investors, the contribution of the Taiwanese diaspora was probably less crucial in this regard.

5.2. China

China, with a population of 1.3 billion, started its economic reform in 1978 and since then has grown rapidly - it has shifted from a centrally-planned to a market based economy and was able to maintain since the late 1970s an average annual GDP growth of about 9% which helped the country to lift 400 million people out of poverty. China alone accounted for more than 75% of poverty reduction in the developing world in the last 20 years (World Bank, 2007b). China recently became the world’s fourth largest economy and the third largest trading nation but it still remains a developing country with a GDP per capita of about \$1,740 and more than 135 million people living with less than \$1 a day (World Bank, 2007c).

China faces several challenges: it needs to maintain rapid economic growth in order to continue to reduce poverty (since the mid-1990s the rate of poverty reduction has fallen) but also to manage carefully its demand of natural resources that supports its growth and the environmental consequences of growth. China will need to shift its growth strategy from one that relies mostly on the manufacturing of goods to one that encourages the development of the service sector (World Bank, 2007c).

The economic rise of China is inseparable from the emergence of global supply chains that imply some sort of outsourcing. The Chinese industrial structure is characterized by a multitude of relatively small-scale firms producing standardized products and competing on the basis of price. The problem with such an industrial structure is that it does not easily allow moving upward into non-substitutable, higher-return on investment activities, for example: control over brands, provision of unique services, or development of proprietary knowledge (Steinfeld, 2004). If Chinese’s firms remain stuck in basic manufacturing, they will have no choice but to

continue to compete on the basis of cost, thus eroding their profit margins and further inhibiting efforts to upgrade. This business strategy of competing on the basis of low costs could also have a reputational effect for China: foreign firms in the IT sector might tend to perceive China only as a low-cost manufacturer of standardized electronic components which could inhibit them to outsource research and development activities to China for example. In this context, Chinese living abroad could help improve the reputation of China as an appropriate location for high-return on investment activities due to their educational credentials and competencies, i.e. their being “reputation ambassadors” as Kapur (2001) would say.

Since the late 1980s, an ongoing debate was opposing Chinese leaders about whether China should send students overseas, a trend that really started in the mid-1980s. Noticing that many students abroad were not coming back to China, some members of the communist party thought that it would be better to restrict regulations, while others saw these former students abroad as a “brain bank” that would eventually profit China (Zweig, 2006). The Tiananmen events of 1989 reinforced the former position and led the State to view overseas students as a direct threat to the communist party which created an unwelcoming environment for students to come back, resulting in even less returnees and accentuating the “brain drain” (Zweig, 2006). Even though China was suffering from an acute brain drain, the government could not prevent students from going abroad: since the early 1990s the number of students going abroad continuously increased. In the period 1998-99, 10.4% of all international students enrolled in U.S. universities were from China (Saxenian, 2002). After repeated refusals to allow these overseas students to return home, the Chinese government eventually decided to soften its position. Starting in 1991, Deng Xiaoping began to improve the climate for returnees but it was not until the 2000s that a global official strategy was adopted to encourage Chinese abroad to come back to China (Zweig, 2006).

In 1996, the Foreign Affairs Bureau of the Ministry of Education began to encourage Chinese who remained overseas to return to China for short visits and “serve the country” (Zweig, 2006). In the late 1990s, U.S.-educated Chinese started returning home in growing numbers (Saxenian, 2002): in the mid and late 1990s, returnees moved to Beijing in order to start telecommunications and Internet-related companies, or to run branches of American companies targeting the Chinese market. A second wave began in 2000 as a result of substantial foreign investments in semiconductors manufacturing capabilities. The increasing number of returnees seems to have contributed to China’s growing role in global production networks (Saxenian, 2002). These international migrants that return to the country facilitate the development of relations based on trust between Chinese and foreign firms because of their abilities to understand and act upon both American and Chinese cultural codes. These returnees who are often members of professional networks and who are active in branches of foreign firms or in Chinese firms, play a critical role in the diffusion of information.

In March 2002, the Ministry of Personnel announced a strategy to facilitate the return of nationals abroad, and in October 2002, the central government adopted its most flexible position when it acknowledged that, since a significant proportion of Chinese students who were trained abroad would probably never come back, China should nevertheless try to make them participate in its development (Zweig, 2006). This change of perspective in official Chinese circles on Chinese educated abroad, from a brain drain to a transnational community, implies that China now recognizes how important it is for its economic development to be globally linked, and that trying to maintain relations with its citizens abroad might facilitate this goal.

In the Silicon Valley we find half a dozen Chinese professional associations that range in size from 200 to over a 1000 members which suggests that Chinese professionals maintain professional as well as personal ties to China even while working in the U.S. (Saxenian, 2002). These networks, with their strong relations with China, are the foundation of transnational

networks: they bind together firms in the Silicon Valley and China and facilitate the transfer of information and capital. In terms of information, it is acknowledged that these networks are important fora for exchanging news, contacts, and business information about China thereby having a direct impact on China's economic development.

Saxenian (2002) identified at least two types of strategies that were developed by China's central and local governments in order to maximize the use of its nationals abroad as a developmental tool: 1- Government support of technical and business exchange: substantial resources were devoted to promote technical and business exchanges. These activities are designed to involve scientists and researchers, business people, and policymakers in cross-regional exchanges of know-how and information while providing opportunities to develop relationships between the Chinese abroad and those that remain in China. The Chinese government is strongly committed to improving external communications with the different Chinese communities abroad, particularly the ones that are found in the Silicon Valley. 2- Programme to encourage return entrepreneurship: Policymakers have attempted to bring back U.S.-educated Chinese by helping them to start their own technology companies. Representatives from the government pay regular visits to the Silicon Valley to recruit Chinese technology professionals. Many municipal governments have established "Returning Students Venture Parks", which offer infrastructure and financial benefits like other science parks but they also address the special needs that returnees may have (for example: special schools for the children of returnees, help with the local bureaucracy, housing services, etc.). The creation of effective high-tech districts needs a certain level of involvement of the nationals abroad (Cohen and Fields, 2000) – targeting nationals abroad when developing a high-tech district must be understood as a strategic move for China.

In order to accelerate its development by improving the transfer of knowledge and technology, China's policymakers have chosen to give privileged attention to foreign investments that pass through joint ventures (Steinfeld, 2004). The implicit rationale is that for Chinese firms to upgrade, they must be able to network with technological leaders from the developed countries. In exchange for transferring technologies and know-how to Chinese counterparts, foreign firms are granted privileged access to the Chinese domestic market or other forms of preferential treatment. These joint ventures while facilitating the transfer of technologies and know-how also help in the establishment of trustful relations between firms which are "forced" to cooperate. We should also point to the fact that joint ventures also have the potential to enhance Chinese firms' reputation. As social capital theory explains, national firms can be the victim or the beneficiary of a spillover effect: the performance of a few firms within the country has an impact on the reputation of all the other firms of that country (Kapur, 2001). If one or some firms are able to associate themselves with technological leaders through joint ventures, it can enhance the reputation of these firms and maybe even other firms in the same industrial sector. Again, Chinese that were educated or worked abroad played an important role in the establishment of these joint ventures by facilitating the interactions between firms (Saxenian, 2002; Kapur, 2001). In parallel, China has developed more liberal policies toward emigration in order to permit its citizens to fly back and forth more easily (Steinfeld, 2004) which should have an impact on the decisions of Chinese abroad to come back to China.

The case of China points again to the crucial role played by networks which are able to bind distant locations and help in the transfer of different forms of capital. Chinese networks in the Silicon Valley are able to reach a large number of Chinese abroad who are keeping strong ties with their home country. The fact that China now puts the emphasis on the development of joint ventures coupled with more liberal emigration policies could help reinforce the development of networks, the general level of trust and could also enhance the reputation of its national firms. Now that we observe more international mobility within the Chinese community abroad, we can speculate that it will have an impact on the economic development of China by

facilitating the transfer of knowledge and know-how and by helping to build relations based on trust between firms.

5.3. India

With more than a billion inhabitants, India is often considered to be the world's largest democracy. In the nearly 60 years since its independence, the country has achieved important progress: reduction of absolute poverty by more than half and a spectacular improvement of literacy and health conditions (World Bank, 2007d). India is now one of the world's fastest growing economies with an annual average growth rate of 8% between 2004-2006; it has recently emerged as one of the important global players in information technology and telecommunications (World Bank, 2007d). Nonetheless, India is still a developing country and home to over a quarter of the world's poor (World Bank, 2007e). Some of the most prominent challenges for India to support its economic growth include the development of infrastructure (in particular the power network, roads, public transportation system and ports) and the upgrading of India's labour force which is heavily concentrated in low productivity informal sector jobs while the service sector in India is booming in part due to the phenomenon of global outsourcing of business processes (World Bank, 2007d).

There are an estimated 20 million Indians living abroad and the majority of today's skilled migrants from India have backgrounds in engineering or computer applications (Chanda and Sreenivasan, 2006). The majority of earlier studies on skilled migration from India adopted a simplified cost-benefit approach by trying to estimate the cost of brain drain plus public expenditure in higher education to migrants versus the remittances of those migrants and their financial savings that were coming back to India (Chanda and Sreenivasan, 2006). More recent studies decided to take a broader approach by trying to understand the impact of skilled migration through brain circulation, in terms of contributions to India's economic development via skills and technology transfer, foreign direct investment and startup capital, effects of diaspora networks, etc. This recent trend of study has shown that India received many benefits, which include upgrading of skills, increased productivity, technology transfer, alleviation of underemployment and unemployment, externalities such as the formation of social and economic networks, cross border investment flows, setting up of new firms and branches of multinationals companies, etc. (Chanda and Sreenivasan, 2006).

India in the last decades was able to increase its level of human capital by investing massively in higher education – India acquired a reputation of quality for its training of IT specialists and there is a growing global demand for these professionals. India plans on increasing the number of engineers trained; however, there is a risk that the quality of the training might suffer due to a faculty-student ratio of 1: 45 (Kapur, 2001). This reputation of quality has a major impact on the opportunities of these students to find work outside India, therefore, creating an incentive for migration. In 1998, 34,000 Indian students and 30,000 Indian professionals went to the U.S. A high proportion of these migrants went to the Silicon Valley where the Indian community is considered to be very successful and well integrated – the fact that Indians speak English is probably an asset for the integration of this community.

Indian professionals in the Silicon Valley started to institutionalize their social networks in the 1990s mostly through the formation of two well-known associations: The Indus Entrepreneur (TiE) and the Silicon Valley Indian Professionals Association (SIPA) (Saxenian, 2002). The Indian diaspora's success in the Silicon Valley has influenced how the world views India; the success of several individuals in high-profile firms had an important "reputational spillover" effect (Kapur, 2001) somehow enhancing the reputation of India as a whole.

As Indian professionals gained seniority in U.S. corporations, as predicted by social capital theory (Cohen and Fields, 2000), they became instrumental in convincing senior management to

establish operations in India in order to take advantage of the wage differential. In fact, senior Indian engineers in the U.S. were among the first to outsource software services to India (Saxenian, 2002). Again, we can see how the reputation of some individuals in high-profile positions can help in the enhancement of the reputation of the community as a whole – the construction of a reputation of quality for its human capital, as a source of social capital, seems to have played an important role in the development of the IT sector in India. The relation between migration and development is obvious in this case.

By the late 1990s, India's reputation as a supplier of software talent was well-established and a large proportion of American corporations were subcontracting programming to Indian suppliers. Most large Silicon Valley companies now have their own development laboratories in India (Saxenian 2002). Concretely, networks of skilled Indian have contributed to the growth of the IT sector in India through investments but also by "selling" India as a safe destination for investments to foreign investors, by bringing in projects, facilitating the outsourcing of services to Indian companies, by helping to link their contacts to overseas clients, etc. (Chanda and Sreenivasan, 2006).

There are more than 750 technology firms in the Silicon Valley that are run by Indians (Saxenian, 2000b) and many of these firms are members of the Indian networks. At the core of the networks, we find a group of Indian investors who got very wealthy by starting companies in the U.S. and who are trying to influence the Indian government to put in place a more attractive context for returning entrepreneurship (Kapur, 2001). This kind of lobby made by Indians abroad can be considered helpful because it permits the transfer of concrete information to the government which are coming directly from the investors circles (Nyberg-Sorensen et al., 2002).

Several of these wealthy Indian entrepreneurs became venture capitalists in both the U.S. and India which had at least two important consequences: 1- it has boosted India's confidence as well as the confidence of overseas investors about India's potential; and 2- it has helped unleash an entrepreneurial culture in a country whose culture was long regarded as inimical to capitalism (Kapur, 2001). The Securities and Exchange Board of India recognized the importance of venture capital in the IT sector which fills the gap between the capital needs of startup firms and the funding available through the traditional institutions which are usually more conservative in their investments strategy (Securities and Exchange Board of India, 2000). The importance of those Indian venture capitalists in the development of the general level of trust and improvement of the reputation of India should be noted: their investments are likely to incite other investors to do the same. Even though a number of institutional problems remain in India (corruption, overwhelming bureaucracy, lack of infrastructures, etc) (Chanda and Sreenivasan, 2006), entrepreneurship is quickly booming and is starting to change regions such as Bangalore and Hyderabad which are becoming centers of design and engineering skills (Saxenian, 2000b).

Contrary to Taiwan and China, only very recently has the Indian government started to develop a coherent policy to encourage the participation of the Indian transnational community in the country (Chanda and Sreenivasan, 2006). The recent shift in the approach of the government was to start viewing as a "brain circulation phenomenon" what was earlier described as a "brain drain". Concretely, the government decided to simplify investment procedures for the Indian diaspora and to consult them on technology and education policies. The government also created official networks and institutional mechanisms to tap their human and financial capital abroad more effectively. Finally in 2004, the government decided to grant dual citizenship to Indian living in 16 countries, which should have an impact on the number of persons willing to go back to India.

The reputation of India as a low-cost supplier of human capital for the IT sector has to be acknowledged: Indian higher education institutions were able to train large numbers of IT specialists, many of whom are now working in different foreign firms, helping to enhance even more the reputation of India. Indian networks in the Silicon Valley also played an important role in linking the Silicon Valley to India but mainly through a group of Indian investors who earned their wealth in America and decided to become venture capitalists: these individuals invested large amount of money in India which sent a powerful message to the investor community about the technological capacities of India. These financial transfers that were put in motion by a few Indian venture capitalists helped to develop the level of trust as well as the reputation of India which contributed to creating a new entrepreneurial culture in India.

In Annex 1, we summarize the different elements of the three cases examined in this section that directly refer to our three sources of social capital. In addition, we identify different elements of State action which seem to reinforce (or not) the effect of the social capital. This last point leads us to the final section of this paper, namely public policies or how the State can intervene in order to maximize the development impact of the social capital of its nationals abroad.

6. State action

The three case studies that we have presented make it clear that the State also has an important role to play in enabling the country to enjoy any benefits linked to the social capital possessed by nationals abroad. Transnational communities have the potential to connect developing regions to global networks which can result in some very positive impacts on economic development, but these effects need to be supported by services, infrastructures and training and education (Nyberg-Sorensen et al., 2002). As Fukuyama remarked (1999), even though the State has the potential to intervene in order to create social capital, it must do so very carefully because it also has the potential to deplete it. They are at least four areas of possible State action in order to maximize the benefits of social capital: 1- mobility of workers and students; 2- active development of collaborations and exchange of information; 3- ensuring an acceptable economic environment for investments; and 4- investments in education and infrastructures.

6.1. Mobility of workers and students

The mobility of workers and students is obviously at the very core of our investigation and cuts across the debate about the overall effect of an initial brain drain. It is starting to be acknowledged that benefits can be drawn from the departure of some nationals; those benefits include remittances (Özden and Schiff, 2006; Ammassari and Black, 2002) but also less tangible benefits such as the communication of technical information and the integration of the country into global networks (Dia, 2004). These last two benefits are linked with the social capital approach which stipulates that international migrants are a crucial transmission belt connecting distant locations and enabling the diffusion of information and market knowledge (Cohen and Fields, 2000) while at the same time helping to develop the level of trust between firms. Due to the increasing complexity of the technological know-how and all other tacit knowledge, interfirm personnel mobility might be the most appropriate way to transfer knowledge to developing countries in the IT sector (Nabeshima, 2004; Saxenian and Hsu, 2001). Therefore, in order to maximize the impact of such benefits, it is essential to: 1- allow individuals to travel back and forth; 2- limit as much as possible the constraints on international mobility; and 3- develop or maintain national conditions that are attractive to nationals abroad.

An increasing number of States now allow their nationals abroad to officially participate in the affairs of their country of birth. This should have an impact on the quality of the relationship between migration and development in both the sending and receiving country, as individuals have greater freedom to travel from one country to the other, thereby helping to put in place a “brain circulation” process (Levitt, 2001). Allowing people to have dual citizenship is a good example of a practice that fosters brain circulation. Increasing the mobility of people is usually a benefit for developing countries because it helps to open opportunities for the transfer of human, financial and social capital; by the same token, increasing mobility amongst the highly skilled seems to create pressure on citizens to get more formal years of education (Higazi, 2005). Another successful strategy for States is to encourage the recruitment of their nationals abroad in order to help with the development of transnational communities: individuals will come back to the country, bringing with them knowledge, know-how, contact information, etc. which is highly desirable for the country (Saxenian, 2002).

6.2. Active development of collaborations and exchange of information

This second area of action concerns mainly the question of the diffusion of information and the strengthening of relations between networks and the State. Even if individuals have the freedom to travel back and forth to their home country, the State has to create structures that facilitate an adequate exchange of information if it wants to fully benefit from having organized networks abroad. The importance of exchange of information is particularly relevant if we observe the process of the establishment of a technology cluster: without strong relations to the most important IT hub, the Silicon Valley, the development of a national IT cluster is probably vain. Industrial clusters imply relations based on trust between firms because of the high level of cooperation required to be successful (Dibaggio and Ferrary, 2003; Lall, 2002). The knowledge held by international migrants and their networks has to find ways into the national system because of its importance for national firms (Castilla et al., 2000). The State has to evaluate the form and degree of engagement of its nationals abroad toward their home country (Kapur, 2001) and put in place appropriate structures to communicate with them. This kind of involvement of the State might enrich the quality of the information received and motivate nationals abroad to keep or strengthen their ties to their home country.

It is important that, within the country, the State tries to create relationships between firms, public institutions of knowledge and individuals – these webs are essential for the transmission of information (Hsu, 2005). External information received by any individuals or institutions within these networks will have a much greater impact if it can be transmitted efficiently to the appropriate institutions within the country. If we want poor regions in developing countries to also benefit from the development process, it is critical for the State to invest in their organizational capacities in order to help them build bridges with national and international networks (Woolcock and Narayan, 2000). The government also has a role to play in the establishment of global networks and governments have an interest in creating and maintaining good relationships with transnational networks because these global connections are necessary for high technology success (Autler, 2000). In the case of Asia, Stiglitz (1996) noted that cooperative relations between government and business networks can have a positive impact on the investment climate. In addition, the establishment of formal and informal councils give firms a way to exchange information with each other and with the government, which creates an environment where decision makers have more information to take sensible investment decisions (Stiglitz, 1996). It should also be noted that cooperation between private firms and public research institutes could be important as well since the new nature of innovation is increasingly science-based and therefore implies fundamental research that private firms are usually reluctant to do on their own because of the risks involved (Lall, 2002).

6.3. Ensuring an acceptable economic environment for investments

As stated earlier, international migrants can lobby in the interests of their home country (Nyberg-Sorensen et al., 2002) with positive effects in terms of the reputation of the country and the general level of trust perceived toward the country's firms and institutions. In order to be effective, such lobbying needs to rely on objective facts that investors will be able to assess. Risk-averse investors and firms will try to limit their risks as much as possible. In some cases, countries will have to make important changes in the socio-economic environment to create favourable conditions for investments.

Confidence in the stability of the environment is usually assumed to be a *sine qua non* condition for investment and sustainable economic development. There is agreement in the literature that the State should put in place the following conditions: good economic management, sound and enforceable legal and property rights, transparent and predictable policies, laws and regulations, well-functioning institutions with a minimal external interference, control over arbitrary behaviour and decisions of individuals in positions of power in public institutions, etc. (Guellec and Ralle, 2003; Rao et al., 2003; Lall, 2002; Knack and Keefer, 1997). By improving the general level of "predictability" within the country, these reforms will help to attract and retain risk-averse investors. In the case of developing or emerging countries with a limited history of business relations with developed countries, these reforms will be essential in order for those countries to be regarded by investors as a legitimate location for investment. In order to lower the transaction costs it also seems important for the government to assure the security of people and property (Lall, 2002). The OECD (2001) highlighted that the quality of the social infrastructure in terms of public institutions, laws and regulations, and legitimacy of authority, is closely linked to its efficiency. For investors such an environment could be seen as a structural insurance that the country is really supportive of external exchanges (Rao et al., 2003).

6.4. Investments in education and infrastructures

Investments in education are usually conceived as a prerequisite in order to gain any long-term benefits from the international migration of the highly-educated. The idea is twofold: 1- eventually having a community of highly-educated individuals abroad; and 2- creating a national pool of qualified workers which will justify the claims made by international migrants who are pushing for foreign investments in their home country. In that context, the State has to develop strong educational policies in order to produce the skills that are in demand in international labour markets (Meyer, 2001). Even though the development of human capital can be very costly, particularly for developing countries with limited resources (Dia, 2004), the benefits will outweigh the costs if the country succeeds in networking with global technical communities (Meyer, 2001).

Fukuyama (1999) considered that general investments in education (both general education and higher education) could be the easiest way for a government to maximize the impacts of social capital. In order to attract investments in the high technology field, it seems essential for a country to have important pools of competent individuals – availability of knowledge workers with the requisite skills and experiences might be critical (Yusuf, 2004). But investments in education are probably not enough: the State would also need to invest in research and development which is often assumed as a corollary to the development of higher education; and the State should provide mechanisms for the commercialization of technological innovations (Autler, 2000).

Investments in physical infrastructures could also be adopted as a supportive strategy. They would substantiate the claims of international migrants concerning their home country as a place

for investments. Concretely, the State could improve physical access to locations by improving the road system or investing in the development of a modern communication infrastructure which has the potential to accentuate information exchange across distant firms and individuals (Woolcock and Narayan, 2000). Construction of technology parks with state of the art facilities for entrepreneurs (for example: Hsinchu in Taiwan) could also be an option for State action as could be special relocation services for returnees.

Drawing from the three case studies, we show in Table 2 some concrete examples of interventions in the four areas of possible State action. The table is not exhaustive for any of the three countries.

Table 2: The four areas of State action: Examples from the three case studies

	Taiwan	China	India
1- Mobility of workers and students	Since the 60s, development of programmes to enable students to go abroad Return migration: financial incentives to come back and active recruitment policies	Official policy adopted to facilitate the return of migrants Official recognition by the central government of nationals abroad as a tool for China's growth More liberal migration policies	Since 2004: dual citizenship
2- Active development of collaborations and exchange of information	Solid cooperation between private firms and public research institutes Creation of the Monte Jade science and technology association	Development of a strategy to promote technical and business exchanges and improvement of the communication with Chinese diaspora	Open consultation with their nationals abroad on topics related to education and technology policies
3- Ensuring an acceptable economic environment for investments	Very high saving rates and international reserves Financial incentives for investments	Financial incentives for investments Emphasis put on joint ventures for foreign firms that wish to invest in China	Simplification of investments procedure for Indians living abroad
4- Investments in education and infrastructures	Massive investments in education and R & D Creation of science parks	Creation of science parks (Returning Students Venture Parks)	Massive investments in education

Conclusion

It would probably be inaccurate to believe that a simple linear relation - either positive or negative - exists between international migration and development. The fact is, both phenomena are complex and dynamic and the relation that seems to exist between them is anything but simple. In this paper we took what De Haas (2006) considers to be a developmentalist approach toward the relation between migration and development, meaning that migration is assumed to help transfer different forms of capital in several ways and accelerate the overall development level of a community under certain conditions. International migrants in an age of globalization can serve as a development tool for their country of birth (Nyberg-Sorensen et al., 2002). If we take a global perspective, the migration process, while generating remittances for the sending country, should also enable developing countries to integrate themselves more easily into global production networks (Dia, 2004).

In order to explain how nationals abroad can play a role in the development process of their country, we decided to use the social capital theory. We focused on the IT sector which has

boomed in the last decade in several countries including some that are still considered to be developing countries. We tried to see if social capital theory would help us to understand the relation between migration and development. While it helps to reconcile economic and social factors, social capital implies that formal and informal institutions exist within a community and allow for the coordination of collective action and the achievement of shared goals – in simple words, relationships influence economic behaviour (Bull and Frate, 2003). To summarize the whole idea, we could say that social capital theory asserts that positive relationships between individuals or firms have an impact on economic productivity and development (Birchmeier, 2002) mostly because: 1- relations built through networks accelerate the transmission of market information (including tacit knowledge and know-how) (Murphy, 2002); 2- commercial transaction always involves some level of trust (Arrow, 1972) which is more likely to exist if individuals or firms have relations; and 3- the good reputation of individuals or firms which usually stems from previous transactions, should enhance the willingness of other individuals or firms to engage in commercial activities with the party (Hörner, 2002; Kapur, 2001).

Coherent with this theory, we postulated that the social capital of international migrants in the IT sector would contribute to the development of their country of origin. We explored the contribution of three sources of social capital to the development process, namely trust, reputation and network. Drawing from three case studies, we found that the social capital theory was relevant in explaining the migration-development nexus. In the IT sector, the Silicon Valley is considered to be the central technological hub, attracting students and workers from all over the planet. These international migrants while working in the Valley usually keep strong relations with their home country, thereby helping to connect their region to the Silicon Valley and also enabling the transmission of information in both directions (Cohen and Fields, 2000).

Our analysis suggests that migrants usually organize themselves in social networks that play a professional role as well: information diffused through those networks helps the members of the network to integrate in the local business community but these networks also serve the purpose of diffusing information concerning both the Silicon Valley and the sending country which contributes, in turn, to create relations between firms. Migrant networks should be pictured as an international information transmission belt. Migrants do not only transmit factual business and technological information; they also serve to transmit more subtle information that would be hard to find through official governmental sites, such as tacit knowledge about the quality and level of education in the country which can be evaluated by looking at the performance of the migrants in American firms for example. This information also serves a purpose for any potential investor and should not be neglected. Therefore as Kapur (2001) pointed out, international migrants by their very own qualities can play a role in the development of the reputation of their home country, helping to counter the newcomer effect. In the same vein, migrants contribute to the creation of links between sending and receiving countries, as well as facilitate the development of relations based on trust between firms. The fact that migrants can possess the cultural know-how that enables them to work in both countries, make them strategic players in globalized markets. As we saw, international migrants act as informal “ambassadors” (whether consciously or not) and lobby in favour of the interests of their country of birth.

In the IT sector, several States recognized the importance of the social capital of their nationals abroad as a tool for their development and designed and adopted official policies to maximize the benefits of social capital. We saw different strategies that were used by governments in order to: 1- create optimal conditions for investments; 2- keep in touch with networks of migrants; 3- help diffuse information, etc. It looks as though governments, after focusing on strategies to prevent the brain drain, are now trying to make the best of it. In that context, States are trying to use their nationals abroad to enhance their development.

Future research should explore if the relation between international migrants, social capital and development is specific or not to the IT sector. Different industrial sectors where a highly-educated labour force is essential could be explored, such as bio-technology, pharmaceuticals and drugs, telecommunication, services, etc. Perhaps all these sectors that depend heavily on human capital could be further developed if developing countries could establish strong relations based on trust with the appropriate global markets. At this point, one can only speculate about the role of international migrants in building these relations. Readers should nevertheless always keep in mind that certain points that we noted in this paper might be conditioned by historical contingencies and therefore hard to replicate in other countries.

Bibliography

- Ammassari, S., and Black, R. (2001). *Harnessing the Potential of Migration and Return to Promote Development: Applying Concepts to West Africa*. International Organization for Migration (IOM), Geneva.
- Arrow, K. J. (1972). *Gifts and Exchanges*. *Philosophy and Public Affairs*, No. 1, Summer.
- Autler, G. H. (2000). *Global Networks in High Technology: The Silicon Valley-Israel Connection*. A thesis submitted for the degree of Master of City Planning at the University of California at Berkeley.
- Bar-Isaac, H. (2005). *Imperfect Competition and Reputational Commitment*. *Economics Letters*, Vol. 89, pp. 167-173.
- Beath, A. L. (2006). *Migration*. In Goldin, I., and Reinert, K. (eds), *Globalization for development*, a copublication of the World Bank and Palgrave Macmillan.
- Beine, M., Docquier, F., and Rapoport, H. (1999). *Brain Drain and Economic Growth: Theory and Evidence*. Seminar offered by : Axe éthique et développement durable du Centre d'économie et d'éthique pour l'environnement et le développement, Université de Versailles-St-Quentin en Yvelines, France.
- Beugelsdijk, S., and Smulders, S. (2004). *Social Capital and Economic Growth*. Report made by CentER / Faculty of Economics, Tilburg University, The Netherlands.
- Beugelsdijk, S., and van Schaik, T. (2004). *Social Capital and Growth in European Regions: An Empirical Test*. *European Journal of Political Economy*, Vol. 21, pp. 301-324.
- Birchmeier, U. (2002). *Le capital social: réalités et hypothèses*. *La vie économique: revue de politiques économiques*. Département fédéral de l'économie (Berne, Suisse), 74^e année, No. 8, pp. 51-56.
- Bourdieu, P., and L. Wacquant (1992). *An Invitation to Reflexive Sociology*. Chicago: University of Chicago Press.
- Brown, M. (2000). *Using the Intellectual Diaspora to reverse the Brain Drain: Some Useful Examples*. Presentation made at the University of Cape Town, South Africa.
- Bull, A., and Frate, M. (2003). *Social Capital in the Development of the Agro Nocerino-Sarnes* (chap. 7). In Sforzi, F. (ed.), *The Institutions of Local Development*, Ashgate, Burlington (USA).
- Carrington, W. J., and Detragiache, E. (1999). "How Extensive is the Brain Drain", in *Finance and Development*, June, pp. 46-49.
- Castilla, E. J., Hwang, H., Granovetter, E., and Granovetter, M. (2000). *Social Network in Silicon Valley* (chap. 11). In Lee, C. M., Miller, W. F., Rowen, H., and Hancock, M. (eds.), *The Silicon Valley Edge: An Habitat for Innovation and Entrepreneurship*.
- Castles, S. (2003). *The International Politics of Forced Migration*. *Development*, Vol. 46, No. 3, pp. 11-20.
- Chanda, R., and Sreenivasan, N. (2006). *India's experience with Skilled Migration*. In Kuptsch, C., and Pang, E. F. (eds), *Competing for Global Talent*, International Institute for Labour Studies, Geneva.

- Cohen, S. S., and Fields, G. (2000). Social Capital and Gains in Silicon Valley (chapter 8), in *Knowledge and Social Capital: Foundations and Applications*, edited by Lesser, E. L., Butterworth-Heinemann, Woburn (Massachusetts).
- Coleman, J.C. (1988). Social Capital in the Creation of Human Capital. *The American Journal of Sociology*, Vol. 94, supplement S95-S120
- Combes, P.-P., Lafourcade, M., and Mayer, T. (2005). The Trade-creating Effects of Business and Social Networks : Evidence from France. *Journal of International Economics*, Vol. 66, pp. 1-29.
- Craig, G. (2003). Globalization, Migration and Social Development. *Journal of Social Development in Africa*, Vol. 18, No. 2, July, pp. 49-76.
- De Haas, H. (2006). Migration, Remittances and Regional Development in Southern Morocco. *Geoforum* (in press).
- Dia, I. A. (2004). The Brain Drain in Selected African Countries: Determinants, Evidence and Impacts (chap. 12). In *Migration between States and Markets*, edited by Entzinger, H., Martiniello, M. and Wihtol de Wenden, C., Ashgate, England.
- Docquier, F., and Marfouk, A. (2006). International Migration by Education Attainment, 1990-2000. In Özden, Ç, and Schiff, M. (Eds.), *International Migration, Remittances and the Brain Drain*, a copublication of the World Bank and Palgrave Macmillan, New York.
- Docquier, F., and Marfouk, A. (2004). *Measuring the Mobility of Skilled Workers (1990-2000) – Release 1.0*, World Bank, Washington D.C.
- Epstein, G. S., and Gang, I. N. (2004). *Ethnic Networks and International Trade*. Discussion Paper No. 1232, Institute for the Study of Labor (IZA): Bonn (Germany).
- Evans, P. (1996). Introduction: Development Strategies across the Public-Private Divide. *World Development*, Vol. 24, No. 6, pp. 1033-1037.
- Fine, B. (2001). *Social Capital versus Social Theory: Political Economy and Social Science at the turn of the Millennium*. Routledge, Contemporary Political Economy Series: London.
- Fukuyama, F. (1999). *Social Capital and Civil Society*. Conference prepared for delivery at the IMF Conference on Second Generation Reforms.
- Fukuyama, F. (1995). Social Capital and the Global Economy. *Foreign Affairs*, Vol. 74, No. 5, pp. 89-104.
- Giusta, M. D. (2003). Social Capital and Development – Issues of Institutional Design and Trust in Mexican Group-Based Microfinance (chap. 5). In Sforzi, F. (ed.), *The Institutions of Local Development*, Ashgate, Burlington (USA).
- Granovetter, M. (2005). The Impact of Social Structure on Economic Outcomes. *Journal of Economic Perspective*, Vol. 19, No. 1, pp. 33-50.
- Guellec, D., and Ralle, P. (2003). *Les nouvelles théories de la croissance*. Éditions la découverte, Paris.
- Harper, R. (2001). *Social Capital: A Review of the literature*. Report prepared for the Social Analysis and Reporting Division of the Office for National Statistics: United Kingdom.
- Higazi, A. (2005). *Integrating Migration and Development Policies: Challenges for ACP-EU Cooperation*, Discussion Paper No. 62, European Centre for Development Policy Management, Maastricht.

- Hill, H. (2004). Technology and Innovation in Developing East Asia (chapter 8-). In Yusuf, S., Altaf, M. A., and Nabeshima, K. (eds), *Production Networking and Technological Change in East Asia*, a copublication of the World Bank and Oxford University Press, Washington.
- Hörner, J. (2002). Reputation and Competition. *The American Economic Review*, Vol. 92, No. 3, pp. 644-663.
- Hsu, J.-Y. (2005). A Site of Transnationalism in the “Undergrounded Empire”: Taipei as an Interface City in the Cross-border Business Networks. *Geoforum*, Vol. 36, pp. 654-666.
- Hu, M.-W. (2003). Many Small Entelopes Make a Dragon. *Futures*, Vol. 35, pp. 379-392.
- Kapur, D. (2001). “Diasporas and Technology Transfer”, in *Journal of Human Development*, Vol. 2, No. 2, pp. 265-286.
- Knack, S., and Keefer, P. (1997). Does Social Capital have an Economic Payoff? A Cross-country Investigation. *The Quarterly Journal of Economics*, November, pp. 1252-1288.
- Lall, S. (2002). *Social Capital and Industrial Transformation*. Working Paper Number 84, Queen Elizabeth House Working Paper Series – QEHWPS84, Oxford University.
- Lederman, D. and Maloney, W. F. (2003). *R&D and Development*. Policy Research Working Paper 3024, The World Bank, Latin America and Caribbean Region, Office of the Chief Economist, Regional Studies Program.
- Levitt, P. (2001). Transnational Migration: Taking Stock and Future Directions. *Global Networks*, Vol. 1, No. 3, pp. 195-216.
- Loury, G. C. (2002). *The Anatomy of Racial Inequality*. Cambridge (Massachusetts): Harvard University Press, 226 p.
- Loury, G. C. (1999). *Social Exclusion and Ethnic Groups: The Challenge to Economics*. Paper prepared for the Annual World Bank Conference on Development Economics, Washington (D.C.), April 28-30, 1999.
- Loury, G. C. (1998). Discrimination in the Post-Civil Rights Era: Beyond Market Interactions. *The Journal of Economic Perspectives*, Vol. 12, No. 2, pp. 117-126.
- Loury, G. C. (1977). A Dynamic Theory of Racial Income Differences (chapter 8). In Wallace, P. A. and Lamond A. (eds.), *Women, Minorities and Employment Discrimination*, Lexington Books, Lexington (MA).
- Lowell, L. B., and Findlay, A. M. (2003). *L’émigration de personnes hautement qualifiée de pays en développement : impact et réponses politiques*, Cahiers de migrations internationales 44F, ILO, Geneva.
- Lyon, F. (2003). The Relations of Co-operation in Group Enterprises and Association in Ghana – Exploration of Issues of Trust and Power (chap. 4). In Sforzi, F. (ed.), *The Institutions of Local Development*, Ashgate, Burlington (USA).
- Martin, P., Abella, M., and Kuptsch, C. (2006). *Managing Labor Migration in the Twenty-First Century*. New Haven (Connecticut): Yale University Press.
- Massey, D. S., J. Arango, G. Hugo, A. Kouaouci, A. Pellegrino and E. Taylor (1993). “Theories of international migration: a review and appraisal”, in *Population and Development Review*, 19 (3): 431-466.
- Meyer, J.-B. (2001). “Network Approach versus Brain Drain: Lessons from the Diasporas”, in *International Migration*, 2001, Vol. 39, Issue 5, pp. 91-108

- Mountford, A. (1997). Can Brain Drain be Good for Growth in the Source Economy? *Journal of Development Economics*, Vol. 53, No. 2, pp. 287-303.
- Murphy, J. T. (2002). Networks, Trust and Innovation in Tanzania's Manufacturing Sector. *World Development*, Vol. 30, No. 4, pp. 591-619.
- Nabeshima, K. (2004). Technology Transfer in East Asia: A Survey (chapter 9). In Yusuf, S., Altaf, M. A., and Nabeshima, K. (eds), *Production Networking and Technological Change in East Asia*, a copublication of the World Bank and Oxford University Press, Washington.
- Nyberg-Sorensen, N., Van Hear, N., and Engberg-Pedersen, P. (2002). The Migration-Development Nexus: Evidence and Policy Options.
- Organisation de coopération et de développement économiques (OCDE) (2001). *Du bien-être des nations : le rôle du capital humain et social*. Rapport préparé par le Centre pour la recherche et l'innovation dans l'enseignement, OCDE, Paris.
- Özden, Ç, and Schiff, M. (2006). Overview. In Özden, Ç, and Schiff, M. (Eds.), *International Migration, Remittances and the Brain Drain*, a copublication of the World Bank and Palgrave Macmillan, New York.
- Portes, A. (2001). Introduction: The Debates and Significance of Immigrant Transnationalism. *Global Networks*, Vol. 1, No. 3, pp. 181-194.
- Portes, A. (1998). Social Capital: Its Origins and Applications in Modern Sociology. *Annual Review of Sociology*, Vol. 24, pp. 1-24.
- Portes, A., and Landolt, P. (2000). Social Capital: Promise and Pitfalls of its Role in Development. *Journal of Latin American Studies*, Vol. 32, pp. 529-547.
- Putnam, R. D. (2000). *Bowling Alone: The Collapse and Revival of American Community*. Simon & Schuster, New York.
- Putnam, R. D. (1993). *Making Democracy Work: Civic Traditions in Modern Italy*. Princeton University Press, Princeton (New Jersey).
- Rao, A. N., Pearce, J. L., and Xin, K. (2003). Governments, Reciprocal Exchange and Trust among Business Associates. *Journal of International Business Studies*, Vol. 36, pp. 104-118.
- Saxenian, A. (1994). *Regional Advantage: Culture and Competition in Silicon Valley and Route 128*. Cambridge (Massachusetts): Harvard University Press.
- Saxenian, A. (2002). Transnational Communities and the Evolution of Global Production Networks: The Case of Taiwan, China and India. *Industry and Innovation*, Vol. 9, No. 3, pp. 183-204.
- Saxenian, A. (2000a). *Silicon Valley's New Immigrant Entrepreneurs*, Working Paper 15, The Center for Comparative Immigration Studies, University of California, San Diego.
- Saxenian, A. (2000b). "Indian Software Engineers are Returning with Enthusiasm and Entrepreneurial Know-how", in *Wall Street Journal*, January 24, 2000.
- Saxenian, A., and Hsu, J.-Y. (2001). The Silicon Valley-Hsinchu Connection: Technical Communities and Industrial Upgrading. *Industrial and Corporate Change*, Vol. 10, No. 4, pp. 893-920.
- Schmitz, H. (1999). From Ascribed to Earned Trust in Exporting Clusters. *Journal of International Economics*, Vol. 48, pp. 139-150.

- Securities and Exchange Board of India (2000). *Report of K.B. Chandrasekhar Committee on Venture Capital*.
- Sleuwaegen, L., and Goedhuys, M. (2002). Growth of Firms in Developing Countries, Evidence from Côte d'Ivoire. *Journal of Development Economics*, Vol. 68, pp. 117-135.
- Solimano, A. (2001). *International Migration and the Global Economic Order: An Overview*. Policy Research Working Paper 2720, Washington (DC): World Bank.
- Steinfeld, E. S. (2004). Chinese Enterprise Development and the Challenge of Global Integration (chapter 6). In Yusuf, S., Altaf, M. A., and Nabeshima, K. (eds), *Production Networking and Technological Change in East Asia*, a copublication of the World Bank and Oxford University Press, Washington.
- Stiglitz, J. E. (1996). Some Lessons from the East Asian Miracle. *The World Bank Research Observer*, Vol. 11, No. 2, pp. 151-177.
- Tamas, K. (2004). *Mapping Study on International Migration*. Stockholm: Institute for Futures Studies.
- Taran, P. A., and Geronimi, E. (2003). *Globalisation et migration de main-d'oeuvre : importance de la protection, perspectives des migrations de travail*, 3F, Genève : BIT.
- Turner, S., and An Nguyen, P. (2005). Young Entrepreneurs, Social Capital and Doi Moi in Hanoi, Vietnam. *Urban Studies*, Vol. 42, No. 10, pp. 1693-1710.
- United Nations General Assembly (2006). *International Migration and Development: Report of the Secretary-General*. Sixtieth session, Agenda item 54 (c): Globalization and Interdependence: International Migration and Development. New York: United Nations.
- United Nations Population Division (2002). *Press Release POP/844: Number of World's Migrants Reaches 175 Million Mark*. New York: United Nations Population Division.
- U.S. Census Bureau (2007). 2005 American Community Survey – S0602; Selected Characteristics of the Native and Foreign-Born Populations. On the internet site of the U.S. Census Bureau: <http://www.census.gov/>, consulted on February 2007.
- Vidal, J. P. (1998). "The Effect of Emigration on Human Capital Formation", in *Journal of Population Economics*, Vol. 11, No. 4, pp. 589-600.
- Vogler, M., and Rotte, R. (2000). The Effects of Development on Migration: Theoretical Issues and New Empirical Evidence. *Journal of Population Economics*, Vol. 13, pp. 485-508.
- Wong, K. Y., and Yip, C. K. (1999). "Education, Economic Growth, and Brain Drain", in *Journal of Economic Dynamics and Control*, Vol. 23, No. 5-6, pp. 699-726.
- Woolcock, M., and Narayan, D. (2000). *Social Capital: Implications for Development Theory, Research and Policy*. The World Bank Research Observer, Vol. 15, No. 2 (August), pp. 225-249.
- World Bank (The) (2007a). *Doing Business in Taiwan, China*. On the internet site of the World Bank: <http://www.worldbank.org/>, consulted on January 2007.
- World Bank (The) (2007b). *Country Brief – China*. On the internet site of the World Bank: <http://www.worldbank.org/>, consulted on January 2007.
- World Bank (The) (2007c). *Country Partnership Strategy (CPS) – China*. On the internet site of the World Bank: <http://www.worldbank.org/>, consulted on January 2007.
- World Bank (The) (2007d). *India Country Overview 2006*. On the internet site of the World Bank: <http://www.worldbank.org/>, consulted on January 2007.

- World Bank (The) (2007e). *India Country Assistance Strategy 2005-08*. On the internet site of the World Bank: <http://www.worldbank.org/>, consulted on January 2007.
- Yusuf, S. (2004). Competitiveness Through Technological Advances Under Global Production Networking (chapter 1). In Yusuf, S., Altaf, M. A., and Nabeshima, K. (eds), *Production Networking and Technological Change in East Asia*, a copublication of the World Bank and Oxford University Press, Washington.
- Zweig, D. (2006). Learning to Compete: China's efforts to Encourage a "Reverse Brain Drain". In Kuptsch, C., and Pang, E. F. (eds), *Competing for Global Talent*, International Institute for Labour Studies, Geneva.

Annex: Summary of the three case studies

Country	Sources of social capital			State action
	a) Trust	b) Reputation	c) Network	
Taiwan	The development of international technical communities via networks enable to enjoy trustful relations between firms	Taiwan already had a solid reputation of being a good equipment manufacturer for leading American and Japanese companies Taiwanese firms have the reputation of being avid consumers of technology	Creation of ethnic network in response to isolation from the mainstream technology community Ethnic networks became professional networks; their goals are to provide resources and to facilitate the exchange of information. Eventually, they facilitated the linkage of the Silicon Valley to Taiwan International networks enable to transfer more easily capital, skills and know-how Professionals that work in both the US and Taiwan and who help with the transfer of information	Massive investment in education (especially in science and engineering) and R&D Since the 60s, opportunities for students to go abroad to study Creation of Science Parks (ex.: Hsinchu) to attract firms and to incite migrants to return Solid cooperation between firms and public research institutes Support for return migration: financial incentives for investments and active recruitment policy Creation of the Monte Jade science and technology association
China	Joint ventures while facilitating the transfer of technologies and know-how, require the development of trustful relations between firms Returnees facilitate the development of trustful relations between Chinese and foreign firms because of their abilities to understand both cultural codes	Chinese firms tend to compete internationally on the basis of low costs. This affects the reputation of the country and inhibits efforts to upgrade (reticent to implement higher return on investments activities) Joint ventures while helping to upgrade the industrial capacities of China, as a impact on the reputation of its firms – the association of Chinese firms with foreign firms helps to improve the reputation of the former	Creation in the Silicon Valley of Chinese professional associations that maintain ties with China and which enable to exchange information and contacts The returnees helped China to join global production networks	Until the early 90s, very few students could go abroad. Restrictive mobility policy In 1996, a new policy is developed to facilitate the return of migrants and entrepreneurship activities Official recognition by the government of the importance of nationals abroad as a tool for China's growth Strategy to promote technical and business exchanges and a commitment of the government to improve external communication with the Chinese's diaspora Establishment of "Returning Students Venture Parks" Emphasis put on joint ventures for foreign firms that wish to invest in China Development of more liberal migration policies

India	<p>US-educated Indians who became venture capitalists and decided to invest in India; this helped the development of an entrepreneurial culture in India</p>	<p>India as a whole has a reputation of quality for the training of IT specialists Indian diaspora had a positive impact on the reputation of quality of its IT specialists – organized Indian networks played a critical role in the process Key Indian employees in US firms played an essential role in convincing the senior management in their respective firms to outsource certain operations in India – they were able to “sell” the good reputation of Indian employees and the financial advantage India’s reputation as a supplier of software talents is well-established worldwide US-educated Indian who became venture capitalists and invested in India sent a powerful message about the reliability of Indian firms</p>	<p>Indians in the Silicon Valley created 2 major professional networks: TiE and SIPA; networks succeeded in bringing projects to India and making connection between their American and Indian members Indian networks have contributed to the development of a large IT sector in India through investments but also by being able to “sell” India as a safe destination for investments Indian networks tried to influence the Indian government to develop a more attractive environment for foreign investors and returnees</p>	<p>Massive investment in education, including investment in higher education. India is training important number of people in the information technology field and is planning on increasing the number of engineers trained Lack of infrastructure (and also the lack of reliability of actual infrastructure, eg. the power network) is a barrier to the development of India Institutional problems that are barriers to investments: corruption, overwhelming bureaucracy, etc Recent change in the Indian government: they are now starting to develop a national strategy to derive benefits from their diaspora: simplification of the investment procedure for Indians living outside the country and open consultation with their diaspora on topics related to education and technology policies In 2004: the government accepted to grant dual citizenship to Indians living abroad</p>
	<p>The Indian higher education system is trusted to produce competent IT specialists – several firms are willing to recruit specialists that were trained in India (Trust and reputation)</p>			

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