Diaspora Knowledge Flows in the Global Economy

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Abstract

Globalization has fostered greater rates of mobility and an increasing reliance on transnational networks for commerce, social interaction, and the transfer of knowledge. This is particularly true among diaspora groups who have left their homelands in search of better economic and political environments. Unlike those of the past, today's migrants stay connected via information and communications technology (ICT). Digital diaspora networks have the potential to reverse brain drain (the flight of human capital resulting from emigration) by facilitating knowledge sharing and technology transfer between the diaspora and the homeland.   This paper explores the role that ICT-enabled diasporic networks are playing in reversing brain drain and stimulating brain gain and brain circulation.   International development initiatives as well as empirical studies revolving around this concept are reviewed. The case of China is presented as an example of a country that has successfully leveraged its diaspora by implementing a number of strategies, including those based on ICT.   A proposed research project, involving the Cape Verdean diaspora in Massachusetts, is also discussed.

Introduction

In today's global economy intellectual capital has become the most important factor of production, underlying a nation's ability to innovate and remain competitive (Stewart, 2007). Knowledge workers have become highly mobile, enabling them to seek out education and employment opportunities in other countries. While this might constitute a net gain for the country on the receiving end, it may also represent a serious loss of talent and 'know-how' from the home country. The phenomenon of brain drain, referring to the flight of human capital resulting from emigration, has had a negative impact on many countries particularly those with the most to lose. It is estimated that one third of the scientific and engineering population trained in developing countries leave their homes to work in developed countries (Turner, 2003). According to one source, there are more African scientists and engineers working in the U. S. then there are in the entire continent of Africa (Mouton, et al., 2007).   This outflow of human capital comes at a great cost.   The loss due to brain drain in Africa is estimated to be over $4 billion annually (Girma, 2007).

In spite of shifting migratory patterns, knowledge flows are not necessarily unidirectional in nature.   A new phenomenon has started to emerge, particularly among educated and highly skilled immigrant groups, in which knowledge and intellectual capital is being transferred back to the home country. For example, many workers in high tech industries have started to return

home after getting an education and working in the U.S, only to start new businesses and help their countries develop new industries. The term 'brain circulation' has been coined to describe this circular movement of skilled labor across nations, and the positive economic consequences of reversing brain drain. While much of the discussion about brain circulation revolves around the mobility of the workforce and the impact of returnees, it also involves less tangible networking mechanisms that enable knowledge flows transcending national borders. The ubiquitous nature of information and communications technology (ICT) has created new opportunities for knowledge sharing between members of the diaspora and individuals in the home country. An emerging body of literature deals specifically with newer mechanisms of knowledge transfer among groups in the diaspora. New terms, such as *intellectual diaspora networks*, *diaspora knowledge networks*, *knowledge transfer networks, e-diaspora* and *knowledge networks abroad* are used to describe this emerging mode of knowledge transfer, facilitated by a flattening world and an expanding digital infrastructure. This paper examines the phenomena of brain circulation and the role that digital diaspora networks are playing in the global economy. A review of recent initiatives and studies as well as a proposed research agenda is presented.

Brain drain to brain circulation

Over the past few decades, various terms have been used to describe the detrimental impact resulting from the migration of highly skilled workers. First described by the British Royal Society during the 1960s to warn of increasing outflows of human capital from Europe to North America (Balmer, et al., 2009), the phenomenon of brain drain has continued to be of great concern to policy makers around the world. Brain drain has been characterized in the literature as the migration of relatively highly educated individuals from developing to developed countries (Carrington and Detragiache, 1998; Beine et al., 2001; Haque and Kim, 1994) and has been at the center of a long standing debate by academics and policy makers. The predominant view considers international mobility of skilled workers as a zero-sum game, i.e. greater migration rates among the highly educated result in reduction of human capital from developing countries where the need is greatest, to developed countries where there is already an abundance of knowledge.

The depletion of human capital has had a profound effect on developing countries, particularly those in Africa (Mouton et al., 2007). Policy makers have utilized a number of strategies to slow the tide of brain drain. Lowell and Gerova (2004) describe the following key interventions and initiatives that have gained popularity over the last few decades: (1) reparation (e.g. levying taxes on rich countries who recruit and employ highly skilled immigrants), (2) restrictions (e.g. policies that restrict immigration and emigration), (3) recruitment of new talent, (4) return (e.g. programs and incentives to lure expatriates back home), and (5) retention (e.g. improvement of salaries of academics, scientists, technologists and professionals). While some of these strategies have met with moderate success in a few newly industrialized countries like China, India, and Taiwan, most traditional strategies have had little impact (Brown, 2002; Turner, 2003) in the developing world. Indeed, the migration of highly skilled workers has continued unabated and the problem of brain drain still poses a major problem throughout the world.

An alternative perspective, commonly referred to as the 'diaspora option', recognizes the fundamental human right to migrate freely and views it as potentially beneficial to both destination and home countries. Described as a 'beneficial brain drain' or 'brain gain' (Beine et al., 2001), the concept is predicated on the notion that highly skilled expatriates may still be loyal to their homelands without wanting to return home and assumes that they can make significant contributions to the social and economic development of the country of origin. The most obvious mechanism for this type of assistance is the financial remittance. Remittance flows to developing countries reached a peak of $338 billion in 2008, representing up to 20% of GDP in some countries (World Bank, 2010). Beyond providing financial capital, expatriates may make intangible contributions in such areas as politics, education, civil society, and woman/minority rights. This is often accomplished via social and professional networks which can be very influential in advancing the development of social, economic, political, and religious sectors in the home country (de Haas, 2006; Gueron and Spevacek, 2008). Equally important is the transfer and exchange of information that can be used to foster innovation, technological development and economic growth in the home country. This is achieved primarily through transnational networks linking highly skilled expatriates with individuals in the country of origin.

Saxenian (2003) described the linkages between Taiwanese high tech professionals in Silicon Valley and those in Taiwan's Hsinchu area, coining the term 'brain circulation' to describe the dynamic pattern of knowledge flow, coming and going in a continuous fashion. Saxenian's later research (2007) extended to other groups, including Indians, Chinese, and Israelis, who have successfully incorporated the concept of brain circulation into their competitiveness strategies by exploiting diasporic networks to advance innovation and accelerate development. Unfortunately, such cases have been more the exception than the rule. Most developing economies do not have the economic and political stability necessary to promote technology development and entrepreneurship at home nor the strategic policies in place to leverage knowledge pools in the diaspora.

ICT and diaspora knowledge flows

As opposed to traditional approaches to deal with brain drain, the 'diaspora option' considers that highly skilled migrants do not need to return home in order to contribute skills and expertise, especially if it can be accomplished via networks enabled by advances in information technology. The rapid expansion of ICT has afforded dispersed diasporic populations the capacity to exert far greater influence on their homelands than ever before. The Internet has reached a much greater saturation level than previous ICTs (e.g. landline telephones, television) and the availability of such tools as email, discussion groups, and social networking platforms has rendered geographic constraints irrelevant. A new generation of 'connected migrants' (Diminescu, 2008) has gained the ability to efficiently research economic and educational opportunities abroad and has enabled the outsourcing of information-based jobs from the developed to the developing world (Duque, 2008).

Gueron and Spevacek (2008) examine the use of ICT and other knowledge management techniques as aids in diasporic communications and highlight how these mechanisms can impact the political, social, cultural and economic foundations of the country of origin. The authors

provide examples of how ICT is being utilized to bridge the digital divide in a number of important areas : (1) society and culture (e.g. mediated virtual forums, discussion groups, blogs and web casts linking experts in the diaspora with home country decision makers), (2) science and technology (e.g. influence investment decisions in technologies that may enhance economic development; create institutional research partnerships ; initiate technology startups, and (3) economic growth – provide job opportunities through telework and outsourcing, employ Internet technology to aid home country entrepreneurs in marketing products abroad. Other critical areas also benefiting from advances in ICT are humanitarian assistance, peacebuilding, and human rights.

The ICT-based 'social-informatics' approach has been promoted as a potential remedy for brain drain and has been embraced by several notable international development agencies over the last decade. Perhaps the most well known is the International Migration program of UNESCO, who has as a high priority the strengthening of capacity, sustainability and effectiveness of diaspora networks to promote brain gain through the use of ICT. The agency's website clearly states the optimistic belief that such an approach can be used as a strategic weapon against the ravages of brain drain. "With the use of information and communication technologies (ICT), this trend can be reversed to brain gain - considering the expatriate skilled population as a potential asset. By facilitating information exchange, technology transfer and business expansion migration can bring new development dynamism and link the country of origin to the global economic system" (www.unesco.org). The main strategies for achieving this are to (1) contribute to the promotion of brain gain through the use of ICT, (2) develop mechanisms and effective tools to improve co-operation links and knowledge sharing, (3) strengthen diaspora networks, and (4) improve access to ICT for diaspora populations. UNESCO's Diaspora Knowledge Network (DKN) project was initiated in 2005 to address these goals and to develop both quantitative and qualitative measures of social solidarity. The DKN project has identified over 150 diaspora networks on the Internet.

The Knowledge Services Center of USAID has also advocated ICT as a way to address brain drain and as a way to narrow the digital divide. Gueron and Spevacek (2008) discuss the creation of a Diaspora Meta Portal which would serve as a virtual 'commons' to connect mature diasporas around the world. This vision includes heavy use of mentors and nurturing agents to help emergent diasporas and would also serve as a market place for disparate diasporic entities to establish alliances and business opportunities. In addition, the portal could also facilitate distance-learning opportunities for expatriates to act as teachers and mentors in their countries of origin. The proposed portal would include many Web 2.0 technologies, such as blogs and wikis, as well as teleconferencing capabilities. Turner (2003) stresses the need for a similar 'Internet interaction spaces' to support the collective processes required for scientific and technical cooperation among members of the diaspora.

While the value proposition of the diaspora option is clear, it is only recently that studies have demonstrated the continued existence and extent of ICT-enabled diaspora networks. Early research (performed in the late 90s) revolved around networks in Colombia and South Africa and involved the use of sociological and anthropological methodologies such as field interviews (Meyer and Wattiaux, 2006). While these isolated case studies were limited in scope, they were important in verifying the feasibility of the diaspora option and providing the impetus for further

research which provided a greater understanding of adoption of the digital diaspora networks in both the developed and developing worlds.

Brown (2002) describes an empirical study conducted in 1998 in which the author used the Internet to identify 43 expatriate networks involving 32 different countries. The following network categories were identified: (1) student/scholarly network, (2) local associations of skilled expatriates, (3) expert pool assistance through development agency, (4) developing intellectual/scientific diaspora networks, and (5) intellectual/scientific diaspora networks.   Other studies by Barre et al. (2003), Lowell and Genova (2004), Meyer and Wattiaux (2006), and Leclerc and Meyer (2007) have identified hundreds of digital diaspora networks relating to both developed and developing countries. The common thread in these studies is that they depended to a great extent on Web surfing using search engine technologies (i.e. keywords) and the perusal of various discussion forum and Usenet sites.   More recently a greater dependency on Internet-based social networking and knowledge sharing platforms has become evident.   As well as utilizing traditional techniques such as surveys, interviews, participant observation, biographical studies, statistical analysis, much of the recent research has utilized newer techniques, such as textual analysis of mailing lists, web-based forums, etc.

While the existence and continued proliferation of digital diaspora networks has been demonstrated through these studies, there has been little research that supports the premise that an ICT-enabled diaspora option is indeed a sustainable and viable approach to address the brain drain problem.   Several authors have expressed doubts as to the efficiency and sustainability of such diaspora networks (Lowell and Gerova, 2004; Lucas, 2004).   And while some continue to tout digital diaspora networks as a panacea that will reverse brain drain and narrow the digital divide, others have remained skeptical claiming that the playing field has become even more uneven with ICT.   In a comparative analysis of several diasporic groups in the U. S. (from South Korea, China, India, Mexico and several Sub-saharan African countries), Patterson (2005) found developing nations with ongoing collaborative technology development agendas between the homeland state and its US-based diaspora have a huge comparative advantage over those developing nations that do not. Duque (2008) points to the asymmetric penetration of the Internet as the primary component leading to the unequal impact of digital diasporic networks.

As this new research area continues to develop new frameworks will be necessary. Indeed, some researchers are already proposing more rigorous methodological approaches to explore digital diaspora networks. Srinivasan and Pyati (2007), for example, propose a new framework called the Diasporic Information Environment Model (DIEM) which is heavily influenced by anthropology theory incorporating such methods as reflexive ethnography, social network analysis, community-based information services research and community-based action research.

The digital diaspora of China

Why is it that some developing countries have successfully leveraged the disapora option, while others have failed to do so?   Some answers become evident by examining the case of the emerging superpower China.   The Chinese have effectively implemented some of the strategies discussed previously (e.g. return) to deal with the brain drain problem.   Since the opening up of

China in the late 70s, overseas Chinese have resumed their relations with the homeland. This can be attributed to the Chinese government's attitude towards overseas capital and knowledge, and also to the country's rapidly expanding economy. Overseas Chinese were seen as an important source of remittances and donations. While these are indeed important, the overseas Chinese contribute in other less tangible ways. A major element of the overseas Chinese professional community, particularly in North America, is composed of students and scholars. Recognizing the importance of innovation and technology transfer to the continuing growth of China, the government has escalated attempts to placate overseas Chinese professionals and to draw them back into the bosom of the motherland.

Between 1978 and 1990 the government implemented more than fifty laws and regulations, targeting overseas Chinese, many of which encouraged them to return. Several exchanges and agreements were implemented which sent selected researchers to the West for study. Over 3000 students were sent overseas in 1978 alone (Biao, 2008). As the pace continued during the mid 80s, it became apparent that many were choosing not to return to China upon graduation, preferring to stay overseas. Shortly after the Tiananmen Square incident in 1989, the U.S. government granted Chinese students permanent residency via an executive order. This was followed, in 1992, by the Chinese Students Protection Act, the immediate impact of which was that 70,000 Chinese students and scholars (including family members) obtained permanent residency in one fell swoop (Biao, 2008). Rather than clamping down, the Chinese government took these events as a signal to shift its policy even further, i.e. from castigating students who stayed on overseas, to encouraging them to return, regardless of previous disagreements with the state. This conciliatory approach, which essentially supported overseas study, encouraged returns, and guaranteed freedom of movement, set the tone for more measures issued by the Chinese government over the next two decades. While the fear of brain drain existed, the government took the view that migration was in fact a way to store brain power overseas to be used in the future, as opposed to a permanent loss. This mindset has facilitated knowledge flows back to China and has contributed to its economic development.

The Chinese diaspora is considered to be largest in the world, with an estimated population of between 52 and 60 million (Tung, 2008). The fact that many overseas Chinese choose to stay in the U. S. does not preclude the transfer of knowledge back to the homeland. Indeed, an important enabler of brain circulation has been ICT. Better economic and social status, along with a ubiquitous digital infrastructure, has enabled the new generation of overseas Chinese to take full advantage of the global information age. Ding (2007) describes how this new connectivity afforded by a digital diaspora is having a major impact on national image building and economic development in China. The author sites a study conducted by Pew Internet and American Life Project in 2001. It found that English speaking Asian Americans had significantly higher levels of Internet usage than the general population (66 compared to 50 percent). They are also the youngest, most highly educated and generally wealthier than other ethnic groups online. The Chinese represent the largest segment of Asian-Americans, with a growing number (24% as of 2004) coming from mainland China (Ding, 2007).

The Internet has become a major networking platform for the new generation of the Chinese diaspora. Many of the newer immigrants, especially those from mainland China, have the sojourner mentality and a strong desire to stay connected to China. This has had a profound

effect not only on foreign policy but on the economic development of China. In many ways, ICT helps overseas Chinese in America to preserve their Chinese ethnic identity. Biao (2008) discusses the preponderance of government websites geared towards the overseas professional community. Some examples are: the China Scholar Abroad (www.chisa.edu.cn), set up by the Ministry of Education, the China Diaspora Web (www.hslmw.com), Liuxue.net (www.liuxue.net), China Overseas Talents (www.chinatalents.gov.cn) and CAS Overseas Study and Continuing Education (www.castalents.ac.cn).

Social networking has also become an important medium, and many sites incorporating Web 2.0 features have become available. The Overseas Chinese Network (OCN) website (http://www.overseaschinesenetwork.com), for example, includes sections for blogs, discussion forums, listings of events and job opportunities.   OCN also maintains a presence on such social networking platforms as Facebook, LinkedIn, Xing and Plaxo.   Informal networks have also allowed China to tap into overseas innovation systems (Ernst, 2008).   It is interesting that social networking as a tool is being embraced by the government to connect not only with overseas Chinese but also with the international business community at large.   Grossman (2008) describes a platform called iBridge, recently launched by the Administrative office of Beijing's Zuongguancun Science and Technology Park, that contains Web 2.0 features such as blogs and user communities to foster global knowledge sharing and collaboration.

The power of networking via ICT has also played an important role in the academic world. Welch and Zhen (2005) speak of an emerging 'Chinese knowledge diaspora' that allows researchers to participate in transnational 'collaboratories'. In their words, "The scale, intensity and rapidity of cross-border flows of information, capital, labor and services … is broaching national boundaries on an unprecedented scale".   Mahroum, Eldridge and Daar (2006) use the term 'digital knowledge networks' to refer to highly skilled overseas Chinese professionals, academics, and scientists transferring knowledge to the home country via ICT.

Reflections and research agenda

Several themes have emerged in this examination of ICT-enabled diaspora knowledge flows. First, as the case of China clearly demonstrates, countries can reverse the tide of brain drain with a balanced combination of sound policy measures and ICT infrastructure. China has utilized both traditional measures (e.g. inducing return of expatriates) as well as the aggressive use of ICT platforms as effective strategies. Other countries, such as Taiwan, Israel and India have also been successful (Saxenian, 2007) in leveraging their diasporas to accelerate economic development.   India's ascent as a global provider of IT services has been directly attributed to the many professional associations, entrepreneurial endeavors and networking activities of Indian communities in the U. S. (Meyer, 2007).

The Internet has provided a far-reaching medium for networking, collaboration, and the circulation of intellectual capital. Web 2.0 technologies, such as blogs, wikis and social networking platforms are playing an increasingly important role in enabling the emergent digital diaspora in countries around the world. But as we have seen, technology alone is not enough; it must be combined with sound governmental policies and an environment at home that fosters

entrepreneurship and innovation, a mix that has not evolved in many developing countries in the South.

Perhaps the hardest hit victim of brain drain has been Africa. While there has been a number of promising digital diaspora initiatives in Africa (for examples see Badshah and Thumler, 2003), there is much that needs to be done to mitigate the impact of brain drain. A 2007 World Bank report indicates that sub-Saharan Africa remains the poorest developing region in the world, with two-fifths of its people living on less than $1 a day (Girma, 2007). Brain drain has proven to be one of the greatest obstacles to development and the continent spends billions annually to recruit Western expertise. While traditional approaches of reversing brain drain have met with limited success, recent studies have shown that engineers, doctors, and other professionals can make a contribution while working in the West, not just in the traditional way by sending remittances back home, but by using information technology to improve the infrastructure (Girma, 2007). More research is needed to determine how developing countries can utilize digital diaspora networking strategies to foster innovation and to accelerate entry into the knowledge economy.

Preliminary research agenda

At Bridgewater State College, we have a unique opportunity to study the diaspora of Cape Verde, a small sub-Saharan African country composed of 10 volcanic islands approximately 600 miles off the coast of Senegal. Since 2004 Cape Verde has made significant progress due to a sound policy environment. The increase in GDP growth along with improvements in human resource development have gradually raised the country's Human Development Index and reduced absolute poverty. As a consequence of its sustained progress, Cape Verde graduated from least developed country status in December, 2007. The country's economy is estimated to have grown by 6.6 per cent in 2007 reflecting a relatively high rate of execution of public investment programs and a dynamic private sector, which include large inflows of foreign direct investment (African Economic Outlook, 2008).

Cape Verde's diaspora is spread out across several continents. In Europe, countries possessing sizable Cape Verdean communities are: Portugal, Italy, France and Holland. In the United States most Cape Verdeans (estimated to be about 275,000) live in the Southeastern part of Massachusetts. While Cape Verde has been unable to benefit from its diaspora in the past, things are starting to change. New infrastructures in the island, as well as developing collaborations in the U.S., are providing new opportunities and renewed hope. Bridgewater State College has recently signed an exchange agreement with the new University of Cape Verde and has started to participate in a number of student and faculty collaborations, including distance learning via such interconnectivity tools such as Skype.

Many opportunities for future empirical research present themselves as this evolution occurs. Survey instruments and questionnaires will be employed to gain a better understanding of how the diaspora in Massachusetts is impacting the economic development of Cape Verde. In addition, secondary data from social networking sites, blogs, etc. will be mined to determine the way in which knowledge is being shared via the Internet. Social Network Analysis (SNA) tools will also be employed to discern the interrelationships between Cape Verdean diasporic elements and the homeland.

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