

**The International Mobility of Talent: Types, Causes and Development Impact**

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**CHAPTER 1. Introduction**

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## 1. Introduction

Economic development is about mobilizing valuable resources for improving living standards and producing meaningful welfare. Besides the classical resources of labour, capital, and land, there is a growing recognition of the importance for economic growth of ‘intangibles’ such as technology, ideas, creativity, and innovation. In turn, behind these intangibles there is ‘human talent’, an inner capacity of individuals to develop ideas and objects, (a new software, a vaccine, a new book or movie) some of them with a high economic value. The interest in the globalization process has focused largely on the international mobility of goods, capital, unskilled workers, and technology but comparatively less attention has been devoted to the international movement of highly qualified people; what we call ‘talent’. This is a curious feature since ultimately international transactions and investments are done by (often talented) people who explore new possibilities made available by the global age. The purpose of this book is to examine the international mobility of human talent and its development implications both on source nations (often developing countries) as well as on recipient nations, (often developed countries), considering also intra-OECD mobility.

The topics of brain drain and brain circulation—more colloquial names for the international mobility of talent—is now reviving after being largely dormant for a few decades. In the 1960s and 1970s there were interesting polemics among economists between the ‘nationalists’ (represented by Don Patinkin) and the ‘internationalists’ (represented by Harry Johnson) that also affected the views of policymakers at the time. The internationalist view stressed that the mobility of talent was the result of better

economic and professional opportunities found abroad than in the home country and that this mobility leads to clear gains for those who move and also for the world economy as resources moved from places with lower productivity to places with higher productivity, thereby raising world income and global welfare. The nationalist school, in turn, questioned the practical meaning of the concept of “world welfare” and pointed out the asymmetric distribution of gains from mobility between receiving and sending countries associated with the mobility of qualified human resources. At that time the topic was strongly influenced by the notion of ‘brain drain’, say a one-way flow of qualified human resources from poor to rich countries (or from the periphery to the core nations in the world economy) that entailed a net permanent loss for the source country. These flows were often viewed as having a negative effect on source countries that made an educational investment in qualified human resources that ultimately left their home nations. These views are evolving and at the start of the twenty first century we think more in terms of ‘brain circulation’, a two way (or multiple directional) movement of talented individuals such as students, professionals, information technology experts, entrepreneurs, cultural workers, and others in the world economy in response to new opportunities open to them by globalization in different cities and countries around the world. This trend has been reinforced by the now greater information flows on economic opportunities and life-styles across the globe and by lower transportation costs. New literature on the topic, distancing itself from the old emphasis on the costs of talent emigration, is highlighting mechanisms through which there can be a “beneficial brain drain” emphasizing some possible positive effects for source countries of the emigration “knowledge workers”. These effects are in terms of flows of remittances, production of

goods of superior technological content that can benefit consumers and producers in the home country, transfer of new technologies and ideas. In turn, this new literature more than lamenting the fiscal cost of talent emigration poses that the higher mobility of human capital can be a good thing as it ties the hands of government that want to tax human, a needed ingredient for economic development.

The story now is of a world in which Indian and Chinese nationals that after graduating in the US became successful entrepreneurs (e.g. in Silicon Valley) and who are uniquely positioned to serve as bridges between Asian and American markets given their contacts, access to technology and capital in both markets and societies. In the 1990s and early 2000s these people started new productive ventures in their home countries transferring technology and market knowledge. In the Latin American context, Chilean, Mexican, and Bolivian entrepreneurs are making successful inroads in biotechnology and cellular phone companies in North America. Some of those investments also have created new links and encouraged new investments in their home countries. The international mobility of talent is not only restricted to the business sector but it is also present in the cultural sector: international celebrities in the world of literature and painting such as Isabel Allende, Mario Vargas Llosa, Fernando Botero, and others are succeeding in Europe, likewise famous soccer players from Africa who succeed in rich countries. However, not all talent mobility is as glamorous as these examples could suggest. A particularly dramatic case is the massive and persistent emigration of medical doctors, nurses and other workers in the health sector coming from poor nations in sub-Saharan African, from the Philippines and other developing countries who go to work to the UK, US, Canada, Australia and other developed countries. The

negative side effect of this mobility of health professionals is the weakening of the health sector in the source countries. This is particularly serious in the case of Africa suffering from AIDS epidemics, malaria, and other diseases that impair the countries' development potential and causes loss of human lives. This poses conflicts between the private interests of health professionals and the social needs of the health sector in the home countries.

The empirical evidence on the size and direction of the mobility of high skills individuals is still scant. However, current trends show that the mobility of people with tertiary education (a proxy of talent) is higher than the mobility of people with lower levels of education.

The empirical evidence shows that the USA and Canada are the main countries of destination of individuals with tertiary education followed by a group of countries formed by Australia, New Zealand, the United Kingdom, Sweden and other developed countries. Certainly the richest countries, when open to immigration are magnets for qualified human resources. The evidence shows also that a substantial part of this mobility is within developed countries (or OECD economies). For developing countries, Russia and India stand as main source-countries for emigrants with tertiary education. The extent of south-south migration of skilled and highly educated people is still substantially unrecorded statistically but the phenomenon certainly exists. As in south-north migration, south-south migration is related to differences in living standards and opportunities within developing countries. In other cases, regional integration schemes foster south-south mobility of qualified human resources. The topic needs, clearly, more research.

## 2. Types of talent

Most of the treatments of brain drain and talent mobility in the literature consider an aggregate of “human capital”. This analytic simplification masks a reality in which there is a variety of different types of talent with different motivations to move and with varied development impact. This volume highlights this heterogeneity of talent and devotes separate chapters to analyze the characteristics, determinants and economic effects of the international mobility of various types of talent such as engineers and technical experts, entrepreneurs, students, health professionals and cultural workers. This volume is organized around the analysis of three broad types of talent mobility:

- (i) *Directly productive talent*. This includes the mobility of entrepreneurs, engineers and other technical talent, technology innovators and business creators. This is people who are engaged directly in activities that lead to the actual production of goods and services.
- (ii) *Academic talent*. This includes the mobility of scientists, scholars and international students. These are individuals that often work or study in universities, research centres and think-tanks and are devoted to the production and/or acquisition of scientific and scholarly knowledge that may be eventually translated in commercially valuable products and inputs.
- (iii) *Talent in social and cultural sectors*. This encompasses the mobility of medical doctors and nurses in the health sector. This talent is engaged directly in the provision of critical social service such as health. In turn, “cultural workers” such as writers, painters, musicians and other people are engaged in artistic and cultural creative activities that

have a value of aesthetic enjoyment and personal development. This is people that write books, produce movies, paintings, handcraft and other cultural goods.

Now we turn, to the various determinants of the mobility of talent. It is important to recognize that most of these determinants apply to different types of talent although the relative importance and specific importance vary from one type of talent to another.

### **3. Conceptual framework. Determinants of talent mobility**

Our own research and the literature on the topic (reviewed selectively in chapter 2) have identified several factors that affect the mobility of different types of talent. These elements can be summarized as follows:

- a) International differences in earnings and development gaps,
- b) Non-Pecuniary motivations.
- c) The demand for capital and talent
- d) Agglomeration and concentration effects
- e) The impact of technology,
- f) Linguistic compatibility, networks and socio-cultural affinity,
- g) Policy regimes and immigration policies.

Let us review briefly each of these determinants.

*(a) International differences in earnings and development gaps.* The literature on the economic determinants of talent mobility stresses the importance of differences in wage levels and earning opportunities across countries and regions in driving people to move from one country/region to another. In general people are not neutral to large differences in income-generating capacities across cities, sectors of economic activity and countries, driving international migration flows. This is particularly relevant for talent engaged in

directly productive activities such as entrepreneurs, (a classic profit-driven segment of the population), engineers, technical experts and others. This income motivation is also valid (with some modifications though) for other categories of course such as scientists, medical doctors and other professionals. If a software developer in Russia makes in his or her home country an income that is just a fraction of what he or she can earn in the USA, the UK, Israel or another destination country as a software developer (or performing another job) then we can expect that the Russian expert will go to work in the higher pay country. More generally, the international mobility of talent depends on the (expected) income differential between what can be earned abroad with respect to the earnings at home in a given activity. The earnings we refer to may be a salary of a professional, the honoraria of a technical expert, the profits for entrepreneurs, the royalties of a writer or the sales income of a painter. At an aggregate level international income per capita differentials across countries are substantial and part of this is often reflected at the level of earnings of individual occupations and activities. Large net income differentials certainly prompt emigration to the higher paying country. This leads us to make a connection between *development gaps* (the difference in living standards and productive potential among countries) and the size and direction of the flow of talented individuals. Talent is expected to flow from countries with a lower level of development to countries with a higher level of development. The development gaps reflect various factors at work such as differentials in growth rates across countries over time that led to differences in per capita income and living standards across nations. In this context, poor and middle income countries are more likely to experience an outflow of their professionals, experts and entrepreneurs if earnings and living conditions and possibilities of professional development are less attractive at home than abroad. In addition, the outflow of scarce human capital can, by itself, amplify the

development gaps as the departure of human capital and talent can be negative for domestic economic growth in the short run at least.

There is an array of factors that contribute to explain the exodus of human capital from certain countries. Economic volatility, weak institutions, political instability, lack of respect for property rights and civil rights, are also likely to prompt emigration of the skilled, talented and more educated people that are often more internationally mobile than less educated and less skilled people.

**(b) Non-pecuniary factors.** Clearly, there are other considerations, besides earnings differentials, in the decision of talent to move internationally. People may refrain to leave their home country because he or she does not want to sever ties with family, friends and colleagues. There is also a personal history behind people in their home country and people are attached to those personal experiences that are tied to their home country. Other considerations that matter for specific types of talent when the option to migrate is open are the following: a scientist may have an over-riding interest also in the quality of the research centres and universities, the research facilities, the availability of budgets and the quality of peer interaction in the destination country. All these factors fundamentally affect the research environment and thereby the potential of professional realization of academic talent.

Another case is that of engineers and innovators living in technologically advanced economies that may derive high personal satisfaction from contributing to the technological development of their home country. The lure of being in places where innovation and creativity takes place can be very important for the decision to locate of technical talent. In the political realm, national leaders in the diaspora are motivated to join to nation-building in their home countries for various personal and political reasons.

The case of former Prime Minister of Israel, Golda Meir is telling in this regard. As described in chapter 4 of this book, when interviewed long ago on her motivations to move, she stated that she could not miss what was going on in the newly formed state of Israel, even at the cost of leaving behind the comfort and security of their home to engage in a tumultuous process of nation-building abroad. An apparently opposite case, in terms of motivation to emigrate is the case of health professionals leaving their home countries at the time of serious shortages of medical personnel or downright health crises in their home nations.

*(c) The demand for capital, location and talent.* The demand for directly productive talent is interrelated with the demand for other factors of production such as capital and, to some extent, unskilled workers. A country that offers interesting economic opportunities and good living conditions will attract, jointly, several productive factors of production: capital, workers and talent. Historically, Argentina at the end of the 19<sup>th</sup> century and early 20<sup>st</sup> century, a period of prosperity for Argentina (a period often referred to as the *belle époque*), attracted workers and people with entrepreneurial capabilities from Italy and Spain and capital from England. In more recent years, India, China, Ireland and other dynamic economies attract both capital, workers and human capital from abroad. Usually there are complementarities between these factors of production: new machines and more sophisticated equipment need good professionals, technical experts and managers to be successfully operated.

Also capital needs talent and this can be located in other countries. Firms face several choices in the decision of where (location) and how to conduct production: in a world of international mobility of factors of production capital (firms) face various possibilities regarding the use of talent: (a) hire domestic talent for production and/or

marketing (b) import talent from foreign countries (engineers, ICT experts, etc), (c) relocate operations to low-wage countries to tap talent there, (d) outsource talent services in foreign countries and (e) outsource talent in the home market. Various configurations of outsourcing, location of production, and use of national and foreign talent are possible.

***(d) Technology and the demand for Talent.*** The revolution of information and communications technology (ICT) of the last two to three decades has spurred an increased in the demand for talent that specializes in these areas. Engineers, mathematical programmers, scientists and others whose knowledge can be used in the development of software and hardware are especially valuable. As mentioned before, when talent is imported from abroad, the supply of talent comes from a few developing countries such as Russia, India, China, Poland, South Africa, Mexico, Brazil and others. The supply of technical talent from Latin (south) American countries for some important markets such as the United States is still small in contrast with the talent coming from Asia. However, the Caribbean is an important source of nurses and other professionals of the health sector that go to the US. Another point to be made is that ICT technology today allows that services be rendered to the client without a permanent physical presence of the provider (consultancy reports can be sent through the internet, accounting services can be carried out overseas and be sent electronically, a medical doctor can oversee a surgical operation in another country through video, etc.). Travel and electronic communication make connection and economic exchange feasible without the residence, or the immigration, of the individual service provider in another country.

***(e) Agglomeration and concentration effects.*** In general, talent is attracted by the availability of other talented people as creative processes (a new idea, a new product, and a new productive process, research and development activities) are rarely done in isolation. As

indicated before, technical experts, engineers and scientists may leave their native countries attracted not only by better pay abroad, but also by the allure of interacting with well qualified peers. Knowledge workers often like to locate in areas in which there are sufficient resources to do research, develop new technologies and products. In contrast, the talented individuals that stay at home may find a lack of recognition, poor career prospects, modest salaries and the absence of a critical mass of professional peers. Also scholars and scientist will place a high value to the quality of faculty in the universities they work, a feature that underscores that concentration effects is important for one's productivity in the scientific realm and also for signaling reasons. In the same vein, writers and painters often concentrate in cities with vibrant and dynamic cultural life such as Paris, New York, London, Madrid and others centers in which there is a substantial concentration of artists and "cultural workers".

*(f) Linguistic compatibility, networks and socio-cultural affinity.* The traditional cultural obstacles for the mobility of people across nations such as differences in language, cultural traits, codes of social behavior are often less important for people with higher education levels. In fact, the well educated and cultivated migrant often has knowledge of more than one language and display a greater awareness of the cultural differences across nations. This marks a difference to poor migrants and less skilled workers that move across national boundaries. These traits facilitate the international mobility of talent and make it easier their adjustment to other countries and realities. There is an "international elite of talent" composed by people who has studied abroad, belong to professional and alumni networks of prestigious universities and have developed a dense net of contacts with well placed individuals around the world. This talent may move in the academic, business and public policy national and international circuits. In the business sector this elite is composed by executives and professionals of multinational corporations and international organizations

all this facilitates their mobility. Sometimes these elites, when motivated to connect and help their home countries, constitute Diaspora organizations of the sort analyzed in this book. In other cases individuals develop and maintain individual contacts without belonging to any organization.

*(g) Policy Regimes and Immigration Policies.* Economists give a big importance to policy regimes in affecting the international mobility of people. This goes beyond immigration policies although the literature on migration often focuses chiefly on this. In fact it is all the array of economic and public policies that ultimately matter in affecting the mobility of talent across nations. The broad policy regime, in the home and host country, can crucially affect the decision of talent to stay, leave or return to their home countries. If policies are such that countries grow slowly, offer poor business opportunities, low salaries in universities, macroeconomic volatility and other malaises, then we can expect that the talent elite (from entrepreneurs and innovators to professionals and bright students) will resent these conditions and try to leave their home countries. Bureaucracy, volatility and instability that 'tax' foreign direct investment will also 'tax' human capital. As result the level of human and physical capital in the home country will be lower than otherwise. Conversely, if countries set up more liberal and open policy regimes that create interesting returns for business and the well educated -- with positive effects for the economy and society at large-- then the policy regime will encourage less outflows and more inflows of talent.

Migration policies, particularly in receiving countries, affect directly the international flows of people as they regulate the actual entry and exit of foreigners (and nationals) from a certain country. Of course these regulation are far from complete as a substantial amount of immigrants particularly of less skilled people, remain as non-

documented in the host country. These regimes are not exogenously given but are shaped by many factors. One of them is the shortage of certain skilled professionals in local labor markets such as information technology experts and computer science specialists, engineers, nurses, medical doctors and others. This is another important factor behind the increase in demand for talent in the world economy and the greater liberalization, in rich countries, of immigration policies for qualified human resources compared to the restrictions facing unskilled immigrants. In fact, many countries now actively search for global talent. Examples of that are Ireland, Singapore, Scotland and others that are offering economic conditions that are favorable to the admission of people with higher education, special knowledge and also investors who bring capital and technology. Mature advanced countries such as Australia, the US, Canada, the UK, Germany and others have created special visa programs for IT experts, nurses and medical doctors, international scientist and graduate students. From a global perspective these policies of attracting talent by affluent economies compete with the efforts of developing countries and poor economies to retain its internal talent or attract it from other nations, to cover internal skills shortages, from other countries.

#### **4. Impact of talent mobility on economic development.**

There are various developmental and global effects of the mobility of qualified human resources: the outflows and inflows of talent affect the production and transfer of knowledge, the level of productivity and international competitiveness of a country, its fiscal revenues base (as human capital is a source of taxation), the size of the middle class and other effects. Analytically, the emigration of human capital reduces the stock of human capital and output in the source country and increases it in the receiving one, at least in the short run.<sup>1</sup> In addition, there can be a loss of welfare for the remaining population in the

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<sup>1</sup> The emigration of talented and educated people reduces the supply of human capital in the source country and, therefore, increases the remuneration of this factor of production. In the medium run this may increase the supply of educated people in the source country creating a “brain gain” effect.

home country because of externalities due to a loss of scarce skills. The externality occurs when the social marginal product of a highly skilled emigrant is greater than their private marginal product. Usually this is due to spill-over effects from knowledge and human capital to labour and capital productivity. From a global perspective, world income should be higher with more mobile human capital (talent), as the marginal productivity of human capital in the world economy increases when talent moves from countries with lower marginal productivity to countries with higher marginal productivity. As a result, there is global efficiency gains associated with an increased international mobility of talent. This analysis, however, has to be qualified as it does not consider the international distributional impact of the costs and benefits of such migration flows between sending and receiving nations. The gains and losses from the mobility of talent for sending and receiving countries depend on whether the international flow of people is temporary or more permanent, besides other factors.

When the “brightest and the best” go abroad “for good” (permanent migration) the outflow of talent can retard economic development in sending nations by adversely affecting the development of local science and technology thereby affecting productivity, comparative advantages, and growth. In turn, the receiving countries can benefit from increased knowledge gained from the immigration of talent, creating a virtuous circle in which foreign talent combines with domestic talent and capital, strengthening the overall human capital base in the host country. For example, the US benefited greatly through the twentieth century for its development of science (and then technologies) by the inflows of foreign talent in the 1930s and 1940s when leading scientists coming from Europe to escape Nazism and war went to America. Later, in the 1990s and 2000s the USA is benefiting by the inflow of talent, particularly in the ICT sector, coming from developing countries and post-socialist nations.

### ***Who Stays, or Returns***

From the viewpoint of international development, a permanent emigration of the highly qualified may *amplify* international disparities in the endowments of human resources between source and receiving countries, widening development gaps and per capita income levels among countries. In fact, the evidence suggests a considerable concentration of the

world stock of qualified human resources, measured as people with tertiary education, in a few high per capita income countries such as the USA, Canada, the UK, Australia and other developed nations. In fact, the OECD is the main destination region for talent such as information technology experts, health professionals, scientists, students, and others coming from developing countries. However, the emigration of talent is not a complete loss for the source country. This volume underscores that talent mobility can also have *potentially positive effects for the source countries* in terms of remittances flows and by the potential of mobilization of fresh capital accumulated by emigrants who may want to invest in their home countries. In the case of return migration, these migrants may bring home new technologies and managerial techniques, contacts and new ideas that can be very useful for national development. In this book we analyze the case of international mobility to their home countries of “technology entrepreneurs” who have previously studied then set up companies in the host countries but that also have decided to invest in their home country bringing capital, technology, and market knowledge to the home nation generating often win-win situations for both source and home countries and, of course, for the individual who invest in both markets. In addition, “knowledge workers” engage abroad in the production of high quality, technologically- advanced goods that can benefit also the source country.

For the case of scientists, international students, and scholars we see a movement south–north, but then not all who study in the north (North America is the largest recipient within the OECD of international students, scientists, and other foreign professionals) remain there after graduation. The evidence shows large cross country variation in the return rates of PhDs graduated in the US: high for students coming from countries such as Indonesia, Korea, Brazil, and Chile, but low for Chinese and Indian students who tend to stay in the USA after graduation.<sup>2</sup> Again for some countries sending students abroad can be a high- return investment from a national point of view.

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<sup>2</sup> Regarding medical doctors and nurses the negative side effect of the mobility of health professionals is the weakening of the health sector in the source countries. This is particularly serious in the case of some Caribbean countries in which a high percentage of their health professionals reside abroad. Another serious case is sub-Saharan Africa where AIDS, malaria, and other diseases impair the development potential and cause great loss of human lives.

### ***Economic Growth in Receiving Countries***

The relation between growth and international migration of talent in the *country that receives* the migrants can reflect a mutual causality: rapid growth, expanding opportunities, technological discoveries, and land/natural resource availability in the host country generates a demand for unskilled labour and for talent as the domestic supply of those human resources may be insufficient to meet the increased demand. Then, growth and opportunities may *precede* the mobility of talent. In turn, the inflow of talent, capital and technology *reinforces and sustain a growth dynamics*. Historically, the immigration of people with entrepreneurial capacities and a favourable attitude towards risk-taking contributed to business creation, resource mobilization, colonization, and innovation – all factors that supported rapid economic growth – in the countries of the New World in the first era of globalization (pre-1914).<sup>3</sup> More recently, in the 1990s, entrepreneurial immigrants from India, Taiwan, and China in to Silicon Valley in the US have provided a valuable human resource in the creation of high technology industries, both in hardware and software in the receiving country, in this case in the united States as an important host country for foreign entrepreneurs. They have engaged in business creation and output growth in the high-tech sector contributing to economy-wide growth. In turn, the return migration of technology entrepreneurs has helped to drive the acceleration in growth in recent years in India, China, Taiwan and others.

### ***Economic Growth and Welfare in Source Countries***

In the *source countries* an outflow of entrepreneurs and technical talent may depress business creation, innovation and growth. Likewise an outflow of people with high educational levels also reduces the stock of human capital with a potentially negative effect on domestic growth. Human capital may leave the home country because poor opportunities, barriers to business creation, excessive bureaucracy, lack of career prospects for professionals and the

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<sup>3</sup> Historically this was the case of Argentina, the USA, Canada, Australia, and other countries of the New World at the end of the nineteenth century, which received large contingents of European migration; both of workers but also of people with entrepreneurial capacities. Argentina experienced rapid rates of output growth and net immigration, mainly from Spain and Italy. Much expansion was financed, largely, with foreign capital from England. In turn, massive immigration allowed the mobilization of the large natural resources of the receiving countries and was the key engine in their growth process, *sustaining and reinforcing* the dynamics of growth and prosperity.

like. This is the *brain drain* effect. However, this is not the end of the story as emigration raises the returns on investment in human capital (under decreasing returns as the stock of human capital is lower) thereby inviting more investment in education with future positive growth effects. In this case, the “brain drain effect” of emigration of talent has to be counter-balanced with the *brain gain effect*. At the same time, if emigration follows a cycle and the emigrant returns home bringing fresh capital, contacts, and knowledge we have a positive development effect for the home country. In Taiwan in the last two decades or so, the formation and development of the Hsinchu Science-based Industrial Park (HSIP) benefited greatly from return immigrant Taiwanese entrepreneurs and engineers from Silicon Valley. In fact, several successful Indians and Taiwanese in the high-tech industry in the US also set up hardware and software companies in their home countries contributing to growth in the source countries.

## **5. Policy issues and conclusions.**

The international mobility of talent affects the level of economic development and the technical capabilities of both sending and receiving countries. In some cases talent migration can be a win-win situation such as the case of entrepreneurs that invest both in the host and home countries creating valuable transfers of technology, market contacts, ideas and capital. In contrast countries facing adverse economic or political conditions may see their bright students and medical doctors and nurses leave, followed by little return migration, remittances and other benefits from talent migration. Clearly emigration of talent under these circumstances creates a development problem for the home country. A message of this volume is that in evaluating the costs and benefits of the mobility of talent it is important to distinguish which type of qualified human resource and the context under which they are moving.

Another conclusion of our work is that the emigration of talent can be both a *cause* and a *consequence* of underdevelopment and of the development gaps that we observe nowadays in the world economy. There is clearly a *double causality* here: on one hand, the exit of talent can amplify international disparities in living standards across countries and affect adversely the capacity of lower income countries to catch up with rich nations. The causality here goes from the exit of talent to low development levels and persistent development gaps

across economies. Valuable human resources with high productivity leave the home country and, this, for a while, can retard economic development in the home nation.

At the same time the emigration of human capital is also a *consequence* of low development levels, of lack of opportunities, stagnation and failed policy regimes in the source country prompting the talented, well educated and skilled to leave the home country. This is the other side of the causality: one going from development levels (and gaps) to talent mobility.

The existence of large development gaps among countries should not necessarily lead to a “fatalistic” or “fundamentalist” position in which brain drain from poor countries to rich countries is unavoidable unless there is a full turn-around in the whole development path and policies of source countries. As this turn-around is unlikely to take place in the short run in many countries we should also consider that useful policies and initiatives to make talent mobility a forcer of international development are possible. The views in the volume are that public policies and specific initiatives do play a role in attracting and mobilizing talent for development. Things can be done at *global level* (as this is a global issue) as well as at the level of *national policies* in the source and the receiving countries. Certain types of talent mobility require global attention and cooperation. A case at hand is the international mobility of health professionals from poor to rich countries an area in which the need for cooperative policy responses are needed. The cooperation probably must be centred on principles that balance the health needs of the population in home and host countries, the human resource needs of the health sector of receiving and source nations and the economic and professional interest of health professionals and health workers. Ethical standards for recruitment and compensation schemes are possible tools to deal with this phenomenon. South –south cooperation is possible too: Cuba today is a main source of medical personnel going to other developing countries in Latin America and Africa experiencing shortages of health sector professionals. Mobility of talent from north-south is also possible if properly mobilized and rewarded by countries of the first world.

Policies that encourage the *re-connection* and *return* of talent to the home countries to support national development hold promise. In this volume we show that business networks and scientific and cultural networks oriented to mobilize expatriate Diasporas have proved to be useful in several countries for contacting and mobilizing expatriate Diasporas with nationals of their home country. At a more conceptual level it is important to recognize that specific

programs (more microeconomic and sector-based) to attract talent have to be accompanied also by adequate macroeconomic and development policies that avoid major distortions in incentives and opportunities that are at the root of the emigration of talent. Effective policies must recognize that talent, to be economically and developmentally effective, comes in packages; usually along with technology, capital, contacts and market connections. If we want to attract talent to productive activities we have to make sure they have access to credit, technology, markets, infrastructure and facilitation of business creation. To attract scientific talent and outstanding students, source countries should revise their salary structures in university and research centres. The creation of financially sustainable ‘Centres of Excellence’ for the advancement of science and technology in the source countries can be a worthy initiative that helps to concentrate scarce talent creating synergies and boost motivation amongst peers. This, in turn, can be an important factor for retaining scientists in the home country and/or encourage their repatriation. The Latin America experience offers some encouraging examples in which top-class scientists have been attracted and retained after these centres were created; this is for example the case of the Center of Scientific Research in Valdivia, Chile (created after a grant from the World Bank to the Chilean government) and that later became nearly financially autonomous. Similar initiatives could be developed also for cultural talent. Finally, the public sector in the developing world should align salary scales, promotion rules and career possibilities to retain the scarce and valuable professional staff. Party politics that promote the militants of the parties that support governments, in the different echelons of the public sector as a way to gain political influence and power is a practice that is unfortunately widespread in many countries. It has to be avoided as it will certainly be at odds with human resources policies that seek to attract talent on the basis of merit and commitment to economic development.

## **6. Organization of the book.**

The book comprises 11 chapters, organized around five parts. Chapter 1 provides an Introduction of the book and sets-out the main conceptual framework. Part A is comprised of chapters 2 to 4. Chapter 2, by Andrés Solimano of UN-ECLAC, is an overview of selected topics in the field and Chapter 3 by Anthony D’Costa of the

University of Washington reviews the mobility of technical talent in the global economy during the information technology revolution from the perspective of international development. The chapter deals with measurement issues, documenting magnitude and direction of flows of technical talent (scientists, engineers, IT experts) in the knowledge economy around the world. Chapter 4 by Yevgeny Kuznetsov from the World Bank and Charles Sabel from Columbia University undertakes an analytical discussion of the rising role of open migration chains, networks and diasporas as spontaneous organizations that link individuals residing in various countries with individuals and firms in the home country in a world of increasingly flat organization and multi-direction flows of information in which traditional top-down state intervention is of limited use. The authors elaborate on the dynamics between talent, information, and evolving information.

Part B is devoted to the case of studies of mobility of different types of talent. It includes chapter 5 by AnnaLee Saxenian, from University of California at Berkeley, documents and analyzes emerging two-way flows of skill, capital, and technology between differently specialized regional economies; a trend that is changing the old one-way resource flows from the core and periphery in the international economy. The author focuses on the experience of Chinese and Indian migrant entrepreneurs in Silicon Valley, China, and India regarding the international mobility of ‘Technological Entrepreneurs’; besides exploring the case of Israel and others. Chapter 6 by Kristian Thorn and Lauritz Holm-Nielsen from the World Bank looks at the determinants of return migration of researchers and scientists and the role of economic incentives (international salary differentials) versus other attributes such as quality of research centres, facilities and budgets for research, and ability to interact with peers in the decision of researchers and

scientists to move internationally. The authors also review the international experience, mainly focusing on Latin America, of various public initiatives to attract scientists and researchers to return home and conduct their professional activities there. Chapter 7 by Diego Angel Urdinola, Taizo Takeno, and Quentin Wodon from the World Bank study analytically and empirically the issue of student migration and brain drain. They review theoretical models of brain drain and brain gain and then analyze trends of international students, particularly coming from Latin America, going to the US as a main destination. Then the chapter tests the effects of student migration on brain drain using panel data for 50 countries for the period 1990-2000, using a data base of students coming to the US to pursue tertiary and post-tertiary education. Chapter 8 by Stephen Bach of Kings College in England looks at the direction, magnitude, and determinants of the international mobility of health professionals such as nurses and medical doctors between poor and rich countries and also within OECD nations. Bach examines the impact of mobility of health workers on the health sector in source and destination countries and policy response to avoid the weakening of the health sector in poor sending nations, several of them subject to health crises. These policies may include the use of ethical standards in international recruitment and eventually compensation schemes for sending nations. Chapter 9 by Tony Addison formerly at UNU-WIDER and now at the University of Manchester in the UK looks at the international mobility in the cultural sector. It discusses the specific features of cultural talent and creative industries distinguishing between upstream (high-level) and downstream (low level and subject to technical reproduction). The chapter considers issues of spatial distribution of cultural production and the segmentation of cultural markets between highly paid, winner-takes-all artists

and low-pay artisans and less known artists. The chapter also looks at the links between political upheavals and the mobility of cultural talent both in history and recent past as well as policy implications of mobility in the cultural sector.

Finally Part C considers two special case studies of international talent mobility. Chapter 10 by Jean-Marc Coicaud from the United Nations University discusses issues of mobility of professionals, managers, and other highly qualified human resources in international organizations such as the United Nations and national governments in Europe and the OECD. Chapter 11 by Mario Cervantes and Andrea Goldstein from the OECD examines in great detail the nature, magnitude and characteristics of the mobility of professionals, entrepreneurs, international students and others to Europe compared with North America; the specific rigidities of European labour markets and regulations on business creations are analyzed in terms of their effects on inflows of foreign talent. Finally, the chapter provides three short cases of talent mobility: the movement of South Africans to European countries, the inflows of economists and of soccer players coming from developing countries to Europe.