

INTERNATIONAL CIRCULATION OF TALENT – A SOLUTION FOR THE DEVELOPMENT OF ROMANIA

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The concept of “brain networking” proposed at UNISO 2005 (Ciumasu, 2005), as a possible way to integrate Romanian scientific Diaspora into Romanian research institutions, is being discussed in the context of international studies on “brain drain”. National and regional social-political realities will often hinder, or even oppose, the implementation of such potential solutions. But an appreciation of the international dynamics of talent circulation can only help unveil possibilities at national level, and can improve outcomes of future initiatives. In the international literature, there is a widespread opinion that talent circulation is itself a source of development solutions for the countries of origin. Romanian brain drain should be understood within the context of Central-Eastern European realities. For example, there is a severe shortage of good managers in the former socialist block countries, in all sectors. This is a major obstacle against building high added-value economies, and brain circulation and brain networking may prove to be one right way to take.

International circulation of talent

Data on international migration remains unreliable for most of the world, and further studies are needed to elucidate the proportion of the skilled migrants from the total population of migrants. Most countries of emigration do not collect data on their migrants, but it is known that legal migration is largely concerned with highly educated – a significant, often critical, loss of human capital (Adams, 2003). For countries above 20 million inhabitants, skilled emigration has been estimated to be between 0.6 percent in Brazil and 15 percent in Uganda (Carrington and Detragiache, 1998). Across international and national debates upon how to switch from brain drain to brain gain, common issues are academic structures and traditions, legislation and management, and reputation and image (Mahroum, 2005).

While the bulk of the international migrants will be low skilled, the number of the high skilled migrants is expected to increase, driven by three basic long-term trends (Kapur and MacHale, 2005): (1) Modern growth is about innovation. Because Western companies get short of talent (The Economist, 2006c) rich countries tend to facilitate inflows of educated migrants; (2) Because of huge and rising fiscal costs of population aging (pensions and health care), and hardships with tax increases to cover these costs, or with benefit cuts for the retired, rich countries want highly productive foreign workers to boost public budgets; (3) The international labour market tends to link with international product and capital market: the socio-economic divide between rich and poor countries tends to create a divide in human capital concentration. Employers in rich countries usually have a much better understanding of the true productivity of the highly skilled (Kwok and Leland, 1982): these migrants have a better chance to succeed on a merit basis.

The brain drain loss is an example of basic 'prisoners' dilemma game, where the individual strategy for success is not the best collective strategy for success (Ellerman, 2006). In this sense, the Johnson – Patikin debate is most representative, in which both a liberal,

"internationalist" model and a "nationalist" model of migration can bring valid arguments, although opposite. The internationalist model states that international movement of human capital is beneficial to the World (the policy reference group), because it reflects individual free choices and because it is up to the countries to make themselves attractive for individuals; accordingly, countries should not offer education for free, but provide loans to allow individuals pursue individual paths to success without feeling indebted to any particular country (Johnson, 1968). This position of individual freedom received recent boost by the awareness of a global society, with big common threats (like global environmental changes), needing best education and valuation possible for its best elements, no matter what country they come from. An opposite line of thought is that the idea of free flow of human capital is actually promoted by subtle nationalistic forces in reach countries interested in maintaining their supremacy by poaching the best elements from the others (Young, 1962). Based on the rejection of the idea that the World is a single aggregate that should be taken as policy reference group, the nationalist model of Patikin is rather concerned with what a middle income country must do to limit brain-drain. His answers are, basically, that migrants must be educated in the spirit of identification with the development of the country as part of their individual development (intrinsic motivations) and that countries must set for several centres of attraction within the country to create critical masses, so that those centres (e.g. world impact universities) are prepared for the international competition for human capital (Patikin, 1968). Some voices even contest the habit of funding highly mobile scientists, arguing that this obliges mobility and discourage stable family and social life (Garvalov, 2007).

This problem of brain drain and development rests on a pair of contrasting dynamics: the equalizing dynamics and the critical mass dynamics (Ellerman, 2006). The equalizing dynamics corresponds to a negative feed-back (self limiting mechanism), in which brain-drain from a country would alert other community members and the leaders that reform must be made to avoid significant loss of human capital. Such reforms would lead to conditions getting similar in all countries involved, leading to a more balanced distribution of human capital between those countries. The opposite dynamics is a self reinforcing mechanism where brain drain is a safety valve vanishing out demands for reform, hence reinforcing the situation that caused brain drain in the first place. Themselves alone, entrenched elites will not give up the privileges that are barriers to development. Which of the two dynamics will prevail in a particular country is hard to predict. Against the view that brain drain will ultimately trigger development all over the World, Ellerman (2006) argues that no *a priori* assumption must be made that brain drain would result in development at home.

The specific condition in every country must be taken into account when trying to evaluate what of the two dynamics will take place. The case of Romania is typical for Central-Eastern Europe, i.e. the former socialist block which are now members of the European Union: Estonia, Latvia, Lithuania, Poland, Czech Republic, Slovakia, Hungary, Romania, Slovenia, Bulgaria, and, to a certain extent, Moldova, Ukraine and Balkan countries.

The socio-economic situation in the region is marked by a striking gap between development goals and academic capacity to support necessary reforms. While the big task of the countries in the region is to move from brawn-based to brain-based economy, universities in these countries continue to be (despite some recent efforts) underfunded, largely unreformed, introverted and self-satisfied, complacent and calcified (e.g., Schiermeier, 2003, 2004; Hunyady, 2004; Wojcik, 2004; The Economist, 2006a,b), being poorly prepared for the international competition for scientific talent (e.g., Florian, 2004; Patrasca, 2005; Lente, 2004; Markl, 2005; Palosz, 2006; The Economist, 2006c,e). Therefore, many graduates and young researchers entered a stream of brain drain towards Western Europe and North America. This tendency has been further facilitated by geographic proximity and cultural kinship. For example, German Universities benefited much from young scientific talent from Central-Eastern Europe (Nature, 2006), though not as much as it would have liked, because they are

themselves less competitive in comparison with American universities (Nature, 2005; The Economist, 2006d). However, unlike in Central-Eastern Europe, the quite good research system and infrastructure in Germany makes that about 80% of students who go abroad for their PhD return home. Other rich countries, but with poor research infrastructure and system dynamics, still suffer from brain drain, e.g. Italy and Spain (Markl, 2005; Nature, 2007).

In Central-Eastern Europe, perhaps more important than low income, the cause for scientists' migration are the poor work conditions and poor chances for a successful career of international relevance. Adding up to institutional dysfunctionality, due to the relatively small dimensions of national markets for laboratory equipment and materials, research laboratories in Eastern Europe (as in other developing countries) have to pay much more for the material basis required for respectable research (Schillinger, 2004; Jonjic and Traven, 2004; Carr, 2004; Chiarella, 2004). Brain drain is making this situation worse.

Interestingly, the prospect of emigration can be a powerful incentive to pursue university education, e.g., with medical education in Philippines (Kapur and MacHale, 2005). Starting with the 90s, in Russia or in Ecuador, enrolment in science degrees increased, because a licence in science was seen as a springboard for highly-paid jobs in the rich West (Kuznetsov, 2006). In Romania, the same happened with informatics education. Professionals migrating, difficulties grow in recruiting scientists and academics above mediocrity levels in local universities (Blokland and Warner, 1997; Vieru, 2006).

Migration and the international competition for talent is now occurring between developing countries (Krishna et al., 2000; Kapur and MacHale, 2005), making the university reforms in Central-Eastern Europe even more stringent. With very few exceptions (the few present in the world top 500), universities in the region are drifting toward the backwaters of international science. The number of scientific publications from Eastern Europe has fallen between 1988 and 2001, while that of Latin America has actually tripled, mainly due to increased number of scientists and money for salaries, and more international collaborations (Nature, 2004). The publication rate has also increased in Asia (Nature, 2003).

In Romania, much of the contraction of science activity is due to loss of scientific personnel after the fall of communism in 1989. While in 1989 Romania counted ca 150000 researchers, in 2001 the number dropped to 19726 (lowest) and begun to rise slowly afterwards, reaching in 2004 to 21257 (ASR, 2005). This drop was due to their switch to other sectors or emigration abroad. According to a database kept by Ad-Astra, an NGO, most Romanian scientists abroad in 2004 worked in USA (29%), France (7%), Canada (5%), Germany (5%) and UK (5%) (Florian, 2004). In Romania, the logic of exit versus the logic of commitment is at work (Ellerman, 2006): "what is the efficient way toward success?" Thus, if the conditions for doing science in a certain country are taken as fixed, at least for the relevant future, and the human capital is mobile, then, the logic of exit of human resources is the efficient way to pursue. In other words, young scientists should exit – heading to other locations where their talent is better valued. On the contrary, if mobility of young scientists is limited, but the local conditions are not fixed, then the efficient way to pursue is the logic of commitment – young scientists should push for improving conditions at their location. Given the present democratic standards of the country, the logic of exit prevails. This tendency is being maintained by the present low pace of reform and development in the region. Leaving aside considerations on why this pace is slow, the simple fact is that the time span required for individual success is shorter than the span of national reform and development. In Romania, this situation reflects through the youth's expression "generation of sacrifice". They migrate because they "cannot accept to be part of a generation of sacrifice".

In a questionnaire-based study carried out on 156 Romanian scientists working abroad (Patrasca, 2005), most scientists (increasing number) indicated that they prefer to continue their carrier abroad. The eventual repatriation of some, the study finds, depends on sweeping changes like the establishment of true centres of excellence and facilitations for

entrepreneurial activities. Nevertheless the study has reached two important conclusions that are essential for the home country: (1) most migrated scientists surveyed retained some connections with former institutions and colleagues and (2) there are many ways in which migrants can use their expertise for the benefit of Romania without residing in Romania.

A study of the Romanian Academic Society, an ONG unrelated to the Romanian Academy, points out that, to a large extent, Romania is still a factor-driven economy, only now moving to a high-efficiency economy. According to the authors, Romania has two alternative ways ahead: either to compete with China, India and Poland for offering cheap labour, or go for a sound policy of attracting investments in high added value, high-tech industries. While the accession and deeper integration of Romania into the European Union will lead to a pressure towards increasing productivity and incomes, the only viable way to take is the knowledge-based development. If salary increases will outpace productivity increases, as forecasted by the European Commission, then the country's competitive loss on the international market of cheap labour will be compensated by more highly skilled migrants willing to return to Romania and fortify the knowledge-based economy (SAR, 2007).

The role of Diasporas

E.U. member states from the former socialist block face significant difficulties in their modernisation efforts. While significant foreign investments have flown into these countries, their objective to develop knowledge-intensive economies is still a formidable challenge. Particularly intellectual Diasporas are expected to be "natural building blocks" of the new societies now being developed in these countries, because they: (1) tend to re-link with their country more than low-skilled migrants; (2) usually have good resources and influence in their host countries (Kuznetsov and Sabel, 2006).

The organisation of scientific and technological Diaspora for an involvement into the development of native countries is already a general trend all over the world, and is an opportunity for optimism (Meyer and Brown, 1999). The reality though, is that the achievement of positive impacts of Diasporas on the development of the sending countries depends on a sensitive equilibrium between incentives and reciprocal expectations between countries and their Diasporas. For example, the successful professional migrants tend to "be where the action is" (Ellerman, 2006). This means that it is essential that the country of origin plays on its best assets, and concentrate resources for building world level capacity for scientists. Some talented migrants will involve in capacity building in their native country.

Attracting back migrants is not only a matter of economic resources, because the home country is likely to be part of the migrant's identity (Deci and Ryan, 1985; Lane, 1991; Ellerman, 2006). Nevertheless, economic rationale cannot be ignored – intrinsic motivations can take the lead but it may not have enough resources to fulfil its expectations if sound economics does not follow soon (Hirschman, 1977; Ellerman, 2006). It is necessary that the native country (1) respects the migrant's effort for self-betterment and better life for him and his/her family, and (2) nurture the migrant cultural identity.

Traditional policy measures to stop brain drain may only succeed in retaining mediocre professionals, while the best will continue to migrate (Miyagiwa, 1991). A more productive policy approach is to use incentives instead of prohibitions, and maintain and cultivate links between migrants and their home countries (Kapur and MacHale, 2005). In deed, there is a wide agreement between authors that older ideas like legal restrictions on talent migration, or taxes paid by host countries to sending countries, are not realistic (when applied they failed). A much more feasible way is, in principle, a transnational community of scientists and engineers, linked by internet, helping both developed and developing countries. Most countries with large Diasporas already have some form of professional Diaspora organisation, including scientific diasporas (e.g. the Polish Scientists Abroad group) (Lowell,

2001; Bhagwati, 2003; Ellerman, 2006). In this context, the involvement of scientific Diaspora in Romanian research by means of what has been called "brain networking" (Ciumasu, 2005) is a practical idea. Scientists have all the mobility and openness to follow the example of the international business Diaspora in conducting business in their (developing) country of origin while residing in their host countries in the West (Portes et al., 2001). While brain circulation and brain-networking are complementary, brain networking is easier to implement, because the migrant can continue to benefit working in his host country while involving in his country of origin. Further, such networking is the perfect preparation for a smooth return "home". His anchors in the former host country would only facilitate the international impact of the activity he carried out in his country of return.

In this context, in the presence of a working system of brain networking including Romanian Diaspora scientists, brain drain should be encouraged. But now, what would be a brain drain for a country territory, will actually a brain gain of the brain network, and so strengthening (not weakening) the country of origin by anchoring it more firmly into the front waters of current scientific, technological and socio-economical progress of the World.

Involvement of scientific Diaspora should not stop to collaborations as a "way of life" but should continue by capacity building (e.g., transfer of technology and expertise, institutional building) in order to gain independence in excellence. The independence test should be in the capacity to initiate and lead international research projects and publications. In this sense, a brain networking system could take inspiration from the old tradition in American alumni systems: not only by asking them for funding projects but also asking them to participate in a vision building exercise (Kuznetsov, 2006).

Experiences from national Diasporas

Chinese, Indian and Chilean business Diasporas provide examples of successful involvement in home countries' development (Kuznetsov, 2006). The lesson from Indian Diaspora is that the size/strength of the Diaspora may not be as important as the creation of "disciplined, dedicated, value-driven, visionary Diaspora networks" (Pandey et al., 2006).

The case of the Mexican Diaspora, which has predominantly only primary or secondary education (Chaparro et al., 2006), clearly shows that remittances are not development. The latter requires that knowledge intensive activities and capacity building must be carried out in order to confer development value to the funds transferred by workers abroad (Torres and Kuznetsov, 2006).

A study on Argentinean Diaspora by Kuznetsov et al. (2006) provides a series of widely shared recommendations: stimulate knowledge-based development, more corroboration between science and economy (particularly in areas where initial required investments are not high, e.g., biotechnology, nanotechnology, software, food science and production), develop more human resources, switch to another economic profile of the country – i.e. chose a less resource intensive one, develop a clear industrial policy, and invite Diaspora to participate.

The South Africa case (Marks, 2006) is particularly telling upon the fact that good initiatives are not enough: distrust in national authorities and political complications may cast some shadows on the willing of Diaspora members to engage in their country of origin. One interesting hint of this study is this: why not attract private investors in developing countries on the grounds that online-delivered expertise of highly-skilled Diaspora can provide a competitive advantage on that particular local market?

The study on Columbian Diaspora (Chaparro et al., 2006) brings the lesson of promise and frustration with initiatives aiming at strengthening the local scientific community through the participation of researchers abroad. An internet-based network of nodes of Diaspora members, the *Caldas* initiative, started promising (see also Meyer et al., 1997). However, its

restricted focus to university-based collaborative projects (ignoring other industrial and social implications) condemned it to lose relevance and momentum, and funds dried up. Then, the centralized radial organisation was a fatal weakness – when the central node failed to work properly (leadership slowed down), other nodes collapsed.

The review on the "Globalscot" business initiative to engage Scottish-affinity Diaspora in the development of Scotland teach us the lesson of reciprocity: the Diaspora network should not be at the service of only one side (e.g. the home organization, the financier or the leader), but must be designed with clarity and create clear demand and reciprocal advantage for all network members. A clear and credible strategy and a strong institutional presence is necessary - not to constrain but to facilitate effective action (MacRae and Wight, 2006).

Drawing on all these case studies, Yevgeny Kuznetsov (2006) extracted three main features for Diaspora networks successful in the development of their native countries: (1) Diaspora networks link people possessing the very attributes of development: talent and strong intrinsic motivation; (2) members of Diaspora network play both direct roles (concrete projects) and indirect ones ("bridges, antennae and springboards" for generating development projects in their native countries) and (3) they move readily from discussions to actions.

Further the author notes that Diaspora networks belong, in fact, to the new institutional form of global development: networks which make talent the driving forces. However, psychological studies must be reviewed on how to elicit participation of Diaspora members. For example, in earlier career stages personal advancements tends to be more important than altruistic motivations towards native countries, thence the need for reciprocal opportunities and advantages between home countries and Diaspora members. He point out that the capacity of countries to use their talent abroad is critical. This also includes the capacity to do the work: Diaspora members can offer help and facilitate things, but they cannot substitute for the home institutions and citizens – the later have to do their work as well. This is why it is important to start with small projects, which, if successful can be used as demonstrators for further, gradual growth involvement. He also notes the important role the Diasporas from the new Central-Eastern European Members of the European Union can play for eliciting interest from the part of mainstream investors (which still regard these countries as too risky). By convincing their bosses to invest in high-knowledge activities in Romania and other countries in the region, expatriates from these countries might be primarily driven by career motivations – it is a smart move to initiate action in a terrain in which you can be the guide. According to the author Diaspora and alumni networks and venture capital networks, with which they resemble, are search networks in which members have stakes and where members' intrinsic and extrinsic motivations are enhanced by participation in the network: they help members find new solutions and translate them into projects.

Involving scientific and economic Diaspora in capacity building

Countries have limited supplies of individuals willing and capable of taking on entrenched interests to reform or establish institutions and fight for the rule of law. The dilemma is that those people of talent and drive are more likely to leave where institutional quality is worst, and start over where they are valued at their true level. Their exit naturally leads to reduced demand for institutional improvement. When included in capacity building in home countries, these migrants can act as link between domestic communities and international socio-economic and scientific networks; although they cannot themselves fundamentally improve the basic developmental prospects of a country (like in undemocratic countries) they can employ their talent and expertise in implementing programs in the home country; use their material capital to invest in home country projects as transnational entrepreneurs (Kapur and MacHale). Within scientific communities, brain-networking can provide a much needed channel, and reverberating network for their voice of these institution-

builders to be heard within local professional communities and relevant institutions. In deed, any program of integrating scientific Diaspora into Romanian research should start with such institution-builders and should prioritize on capacity building – a self-reinforcing system for attracting scientific Diaspora into Romanian research.

Migrants, usually have some entrepreneurial drive towards self-betterment (Ellerman, 2006). If they do involve in the development of Romanian research scientific migrants must not feel working with (or in) Romania or other country in the region, as a personal regress. In Poland for example, some science migrants returned in their country of origin only to renew their deception upon his chances in his country of origin (Szklarczyk, 2007).

Obviously, a successful involvement of scientific Diaspora with their country of origin requires that the conditions that caused the brain drain are being corrected to a certain extent. The trick is to achieve a reciprocal commitment between countries and Diaspora, so that scientific migrants contribute themselves to cancelling the reason for exit. Scientific Diaspora must be able to identify with the goals of development of that country and therefore contribute to improving conditions for doing research in the native country (Patikin, 1968; Ellerman, 2006). In my personal dialogues with scientific migrants, one common complaint about Romanian research was "who in Romania (i.e. in the Ministry of Education and Research and in Universities) give a penny on my work?" with an instant, invariable implicit/self-offered answer "nobody". Therefore, not only Diaspora must find its way to Romania, but Romanian authorities must do their part. As the international literature shows, even when Diaspora is well organized and motivated, their involvement with their country of origin is fruitless when authorities in those countries do not act to promote Diaspora involvement (Kuznetsov, 2006).

While this seems to be a return to the conflict between voice and exit (the larger the exit, the smaller the voice to push for reform), there is another contextual element that works in favour of a rapprochement between Diasporas and national authorities in Central-Eastern Europe. This is the pressure exerted on the national authorities by the European Commission (and other institutions of the European Union) towards reform, which resonates with the civil pressure from citizens and the civil society which want their country reach the standards of the older E.U. members. In addition, the rise of internet in international interactions between people makes geographical distances shrink. Internet is effectively changing the way people work and educate themselves and the others (Brown, 2002). The net outcome of these convergence of factors is that the exit of "the best and brightest" does not result in fatal lost of voice in their country of origin. On the contrary, migrants' voice gets louder.

Because connectionist approaches of intellectual Diaspora linking with a home country is itself a form of brain gain for the home country (Meyer, 2001), they can help create critical masses necessary for the establishment and growth of intellectual centres capable of organizing projects for the whole society. The legitimacy and institutional credibility of such centres is in principle given precisely by the international mobility on which they grow (Mahroum, 2000). Such centres can develop and use their expertise in attracting investments and capital transfers (remittances of the low skilled, which are often higher than direct foreign investments) in knowledge-based, high added value enterprises.

Attracting scientific Diaspora in capacity building and in research obeys a "dynamics of agglomeration". This means that what is needed is to play on the effect of a critical mass of scientific talent (Diaspora or local, the best is a combination of the two). A program of attracting scientific Diaspora should concentrate on building critical mass in intellectual centres. In this sense, scientific tradition in old (but reforming) university centres is essential, because an upward dynamics of development of a community (professional or not) depends on the collective image that a community has on itself. If the self perception of a community is that of a ghetto, the only possible dynamics is a downward spiral of ghettoizing – the vicious circle of brain-drain and underdevelopment (Ellerman, 2006).

Scientific research (and education) is central to socio-economic development, both through creating human capital and creating knowledge. There has been much effervescence around the idea of duplicating the Silicon Valley in other countries. However, administrative and investment actions are not sufficient to reproduce the high-tech boom of this Californian hub. The Silicon Valley and its emulation, the Wadi Valley in Israel, developed by the commercialization of decades of Government funded research (Devane, 2006). High tech industries, in general high added value industry, need a very solid research basis. Creating research centres able to attract in a snowball dynamics international human capital is probably to only way to resist the power of existing centres in developed countries. A top role for Diaspora would be consultancy for technology imports by centres in developing countries.

One interesting point in involving economic Diaspora is that key executive in major companies, which have origins in a given developing country, might be much more effective than Diaspora networks in mobilizing investments in this country. Most investors tend to invest within five hours from their current locations in order to closely supervise their progress (Roberts, 2000). Only about five percent of companies seriously think of investing in developing countries (Stein 1997). But key company executives with national origins in developing countries have the necessary levers to make the connection with the potential of those specific developing countries, and observe opportunities that others may not see. In general, expatriates may act as facilitators, accelerating and leveraging the success of national enterprises on the World stage, by decisively contributing to building awareness and confidence of international investors in the progress of their native country (Devane, 2006). The relevance of this for scientific Diaspora comes from the fact that many research laboratories have direct connections with industry companies. Brain networking should consider not only expatriate scientists, but also business seniors in order to unlock investments potential, particularly in the co-development of companies and research laboratories in developing countries. Such developments will increase both the capacity, relevance and self-sustainability of research centres in a globalized context.

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