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**BRAIN-DRAIN FROM EASTERN EUROPE?  
What We Know about and What Not?**

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# **BRAIN-DRAIN FROM EASTERN EUROPE?**

## **What we Know about and What Not**

Nikolai Genov

### **1. Introduction**

The potentials of national scientific communities depend heavily on the professional careers of individual researchers and university teachers ('scientists'). They are the human and social capital of future basic and applied research and thus of the knowledge based development of societies. As seen from another angle, the individual scientists also incorporate the global scientific community. These two sides of the professional career of scientists bear the promise of cooperation and mutual enrichment of national and international scientific communities. In the same time it bears the possibility of tensions between the individual professional careers and institutional frameworks. The background of such tensions is twofold. *First*, sciences (particularly natural and technical sciences) are getting more and more global in their selection of research topics, research methods and patterns of communication. *Second*, sciences are very much expected to contribute to the economic success of firms and to the international competitiveness of national societies. There are mutually supportive, but also contradictory elements of these two institutional settings of sciences and of the related facets of professional careers of scientists.

One of the key elements of this contradictory situation concerns the moving forces and the effects of the international migration of scientists. Undoubtedly, modern science cannot thrive without it. In fact, the international migration of scientists has a centuries-long tradition and substantially contributes to the success of the professional careers of scientists. It also facilitates the cross-fertilization of national scientific communities. However, the migration of scientists holds some problematic sides as well. Scientists who were educated and trained in a given country often leave it on permanent basis in order to reap the fruits of their research work in other countries. Given the universal human right for free movement and the probability to gain best research results in the best research centres, this is a process which deserves understanding and respect. However, the process also raises sensitive issues about gains and losses. Both the availability of talented and qualified researchers and the results of their research have economic and political dimensions.

The issue is universal since the competition for attracting the best and brightest researchers is fierce world-wide. The fear to lose national research personnel very much needed for the development of knowledge-based societies is spread over the globe. But there are regional and national circumstances making the migration and emigration of promising scientists a particularly relevant issue both for the countries of origin and for the host countries. For instance, Germany has simultaneously to confront the challenges of a) aging; b) decreasing interest among German students to choose professional career in the natural sciences and engineering; and c) growing competition on the international R&D labour market. Thus, the country has to counter-act the emigration of highly qualified German young scholars and to attract foreign scientists.<sup>1</sup> As seen from another angle, skilled migration to Germany has been lower in recent history in comparison with the USA. In order to improve the situation, policies for attracting foreign researchers and IT workers were developed. In 2000, Germany launched

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<sup>1</sup> See Giannoccolo, Pierpaolo: "Brain Drain Competition" Policies in Europe: a Survey. 2006, p. 24 [http://www.webalice.it/mvendruscolo/giannoccolo\\_braindrain\\_europe\\_2006.pdf](http://www.webalice.it/mvendruscolo/giannoccolo_braindrain_europe_2006.pdf)

a sort of “green-card” scheme to recruit 20 000 foreign IT specialists. By the end of the following year half that number was recruited mainly from Central and Eastern Europe (CEE).<sup>2</sup> The crucial point in this context is the fact that both the CEE countries and Germany need the talented and trained young scientists, but both sides do not offer equal conditions for their professional careers. Undoubtedly, the scientific infrastructure, the scientific community, the salaries and the career prospects in the EU and particularly in its most developed western part are more attractive for scientists than the conditions in Eastern Europe, particularly in Russia and in the Ukraine. However, how far is this wide-spread knowledge really a factor in the career planning of scientists from Russia and the Ukraine? How intense is their desire to develop professional careers abroad and particularly in the European Union? How matter-of-fact are their assessments of opportunities for a R&D career in the EU?

Currently nobody can answer these questions with certainty. Recent specialised publications on the emigration from Russia and Ukraine do not deal with such issues in details.<sup>3</sup> The research papers focusing on the subject use rather scarce, inconclusive and often contradictory empirical information or mere speculations as a rule.<sup>4</sup> Subsequently, the following issues are very much understudied: What do scientists from Russia and Ukraine actually desire to achieve in their professional careers? What are their visions about scientific environments facilitating or hindering the achievement of their desires? What are the specific opportunities they see for their professional careers and why? What are the constraints they identify and why? Theoretically guided, empirically well substantiated, systematic and practically relevant answers to the above questions are missing. One may only try to tentatively establish the way and the extent to which their experience shapes their desires and career specific expectations concerning professional careers in the framework of the all-European scientific cooperation. More precisely, against the background of the above presented problem situation, the open questions for discussion and further research are the following:

- What kinds of theoretical frameworks might be most promising for the study of desires and assessment of opportunities for scientific professional careers including all-European cooperation?
- What tools for empirical study might be most promising for studying the above problem in Russia and the Ukraine?
- What might be the optimal organizational and financial conditions to carry out empirical studies which would provide the missing reliable information about desires and wishes of Russian and Ukrainian scientists for professional cooperation with scientists from the EU?
- How to assess the potentials for future professional careers of scientists from Russia and the Ukraine with a view to the all-European scientific cooperation?
- How to assess the implications of the identified potential for pursuing professional careers at home or abroad for the professional development of the scientists under scrutiny, for the development of national scientific communities and for the development of science in Europe?

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<sup>2</sup> Cervantes, Mario; Guellec, Dominique: The Brain Drain: Old Myths, New Realities. *OECD Observer*, 2002. - [http://www.oecdobserver.org/news/fullstory.php/aid/673/The\\_brain\\_drain:\\_Old\\_myths,\\_new\\_realities.html](http://www.oecdobserver.org/news/fullstory.php/aid/673/The_brain_drain:_Old_myths,_new_realities.html)

<sup>3</sup> See Mansor, Ali; Quillin, Bryce (Eds.): *Migration and Remittances: Eastern Europe and the Former Soviet Union*. Washington, D.C.: The World Bank, 2006

<sup>4</sup> See for instance Ivakhnyuk, Irina: *Brain Drain from Russia: In Search for a Solution*. Warszawa: Center for International Relations, 2006; Parkhomenko, Natalia: *Migration of Highly-qualified Professionals from the Ukraine: Current Situation and Future Threats*. Warszawa: Center for International Relations, 2006; Kaczmarczyk, Pawel: *Highly Skilled Migration from Poland and other CEE Countries – Myths and Reality*. Warszawa: Center for International Relations, 2006

- What kind of policies for managing the complicated migration processes of scientists in the framework of all-European scientific cooperation might be particularly efficient?

A promising way to approach the issue seems to be to put the discussion further on in the context of the global trend of individualization. The reasons for this assumption seem to be obvious. Professional careers in science are strongly individualized. The reason is the very character of work in modern science which is focused on individual achievements and intensive competition between individuals. Given these general facts, the following discussion on individualization will briefly elaborate on specifics of the adaptation of former Eastern European socialist societies to the global trend of individualization.

## **2. Growing Individualization as a Background of the Increasing Mobility of Scientists**

It is often generally assumed that Eastern Europeans have been isolated from the global trend of individualization for a long period. There are some reasons for this assumption since collectivist ideology undoubtedly dominated cultural and political life in the region after the Second World War. However, reality was much more complex and complicated than this general assumption might suggest. In the course of the rapid industrialization and urbanization and together with the increase of the general well-being of the population, all forms of modern individualization found their way into the region. The enlargement of the pool of alternatives for personal realization coincided with the fast rise of the general educational level and the ensuing enhancement of personal capacities to make well-founded selections and take proper decisions. Among the major indicators for this development is the rise of the R&D potential all over Eastern Europe. In the former Soviet Union, the R&D potential was concentrated in the Russian Federation and in the Ukraine.

In a parallel manner, the development of the scientific communities in Eastern Europe strengthened the potential for conflicts in Eastern Europe. The political over-centralization and the strong state interventionism into science used to put narrow limits on the “window of opportunities” for individualization of scientists. This was mostly visible in the restrictions imposed on the international cooperation of scientists from the former Soviet Union. Together with the ideological and institutional flaws in the socialist organization of production and distribution, state interventionism undermined the efforts to establish and maintain a meritocratic system of incentives and recognition of achievement of individuals in science.

The desire for active and efficient international cooperation of Russian and Ukrainian scientists could not but clash with some processes in both countries after 1991. No doubt, the privatization of state property and the development of competitive politics were the result of accelerated individualization. The rapid establishment of millions of private firms is an impressive illustration of the scale of the process. The registered hundreds of political parties or thousands of non-governmental organizations in each of both countries would be impossible without the initiative of individuals seeking for new forms of personal realization. This development might be interpreted as the *triumph of individualization* understood as a global trend and as an evolutionary achievement. Previous limitations imposed by the state on mobility, self-expression and communication of individuals disappeared. New biographies were written hastily, new norms coined and new institutions established. Many cherished the hope that the key point of all changes had to be the institutional recognition and practical observation of the unrestricted development and expression of individuals.

Now one might strike a preliminary bottom line of this dimension of the post-socialist transformations. The effects of the global trend of individualization are most clearly visible in the changes of legislation. The background philosophy of the socialist Constitutions was clearly focused on the *common good* as conceived as state owned property, ideological and

political unity of society and national cultural identity. While taking the common good as an important point of reference, the post-socialist Constitutions or constitutional amendments have a rather different focus. It is the substance and range of *individual human rights*. The strategic difference between the state socialist and the new Constitutions exemplify a profound shift from *collectivist institutional arrangements* towards *institutionalized individualism*. One might assume that the major problem of opening opportunities for unrestricted personal development and actualization has been thus resolved all over the region.

A closer look at realities helps to understand that they are rather different than the generalized Constitutional provisions. Across Central and South-Eastern Europe and the NIS countries *individualization via privatization* brought about unemployment, poverty, ethnic clashes and alienation of individuals. The expected revival of communities did not come true. Neither was the universal respect to the rights and freedoms of individuals truly materialized in functioning institutions.

What are the causes and reasons for this unpredicted and in many respects undesirable development?

Even the first glance cast at the post-socialist realities immediately recognizes the fact that the fast and far reaching individualization typically came about in the post-socialist societies *at the expense of the common good*. The most impressive example is the looting of state property, as it was practiced in Russia and in the Ukraine on the large scale. Undoubtedly, the state did not effectively manage the productive assets of the increasingly differentiating industrialized societies. That is why the introduction of market mechanisms and privatization of productive assets became unavoidable. The major problem, however, concerns the manner of transfer of state property into private hands. In Russia and the Ukraine it came about after a rather modest or without any compensation to the societal community since the state institutions were weakened and were not able to control the process. Indeed, the high tide of crime is the most dramatic pathology of individualization, which made itself manifest in the course of the transformation.

The key factor determining the peculiarities of individualization all over Eastern Europe after 1989 is the institutional instability marking the transformation process. Thus, the most fundamental problem of 'transitional' societies was and in some cases still is the *high intensity of objective risks* and the institutional incapability to manage them effectively. The resulting erosion of trust in public institutions is an important feature of this situation.

The typical individual reaction to these macro-social processes took the form of what is usually defined as *anomic behaviour* having numerous causes and reasons. Some of them like the worldwide economic recession at the end of the eighties and the beginning of the nineties are as objective as natural events. Others are, however, due to basically avoidable human errors or to ill-intended cases of advice and decisions. The sudden liberalization of domestic prices and of international trade was guided in Russia and in the Ukraine by the hope that the "big bang" would immediately re-arrange economic relations. Thus, the liberalization of prices was expected to immediately unleash individual initiative and responsibility. Little thought was given to the practically non-existent market-oriented banking system and stock exchange, insurance and pension schemes, provisions for unemployment. On the other side, the restructuring of industry in terms of technological and market priorities and environmental considerations was permanently postponed.

The reforms were usually carried out in the context of intensive political confrontation and lacking consensus on strategic domestic and international issues. With few exceptions, there were striking discontinuities in the policies of the changing governments. Dysfunctional relations between state institutions became everyday normality. Corruption became the unavoidable outcome. The economic polarization grew fast in conditions of institutional instability and decline of the gross domestic product. Because of the rapid impoverishment of

large groups and the weakening of state institutions, crime became omnipresent and a genuine threat to everybody.<sup>5</sup>

Against this general background it is not surprising that the profound destabilization of the institutional framework of Russian and Ukrainian societies resulted in intensive feelings of disorientation and uncertainty.<sup>6</sup> The effects of this development might be recognized in the perception of problems pushing Russian scientists to search for professional development and realization abroad<sup>7</sup>:

**Table 1**

**Reasons for emigration of researchers and university teachers at Moscow universities (2004)**

Reason	%
Low wages	76
Decline of prestige of intellectual labour	53
Lack of opportunities to realize the scientific potential	50
Threat of social outbursts	40
Anxiety about the future of the children	35
Economic instability, threat of unemployment	35
Vague prospects of the carrier	19

Thus, the situation of intensive risks still causes perplexity about the real achievements of accelerated individualization in Russia and to a higher extent in the Ukraine. Given the effects of the institutional and the value-normative disarray, it is not surprising that there is a strong trend to search for individual solutions (emigration) to problems confronting the Russian and Ukrainian scientists. Certainly, there are ‘push’ and ‘pull’ factors determining intentions and decisions of scientists in the Western European or North American countries to emigrate as well. *What is regarded as ‘push’ or ‘pull’ factor for emigration of Eastern European in general and Russian and Ukrainian scientists in particular is being multiplied by a strong ‘stress factor’ in the local conditions.* The lack of transparency, efficiency and reliability of major social institutions determine and reproduce this ‘stress factor’. So, the *tremendous opening* of the window of opportunities for individualization by means of scientific achievement clashes with *tremendous problems* in the actualisation of these opportunities on the spot in Russia and Ukraine.

The major problem concerns the limited space for autonomous personal decisions under the difficult economic conditions. Undoubtedly, there is an increase of the level of activity under the pressure of circumstances. The patterns of personal strategies for economic initiative of Russian and Ukrainian scientists are already well established. The opening of opportunities for entrepreneurship has found its followers among scientists and some of them are truly successful. The further development depend on domestic and international opportunities and constraints, for instance on the development of a real European market of scientific ‘brains’

<sup>5</sup> See for details Genov, Nikolai (1999) *Managing Transformations in Eastern Europe*. Paris and Sofia: UNESCO/MOST and REGLO, p. 62. f.

<sup>6</sup> See Genov, Nikolai (2003) ‘Tendenzen der sozialen Entwicklung Russlands. Individualisierung einer vermeintlich kollektivistischen Gesellschaft. *Aus Politik und Zeitgeschichte*, 16/17, S.3-10.

<sup>7</sup> Ivakhnyuk, Irina (2006) *Brain Drain from Russia: in Search for a Solution*. Warsaw: Center for International relations, p.4. There are no indications in the paper about the size of the sample and the method of collecting the primary information.

together with the expected more intensive mobility of the highly qualified labour force Europe-wide.

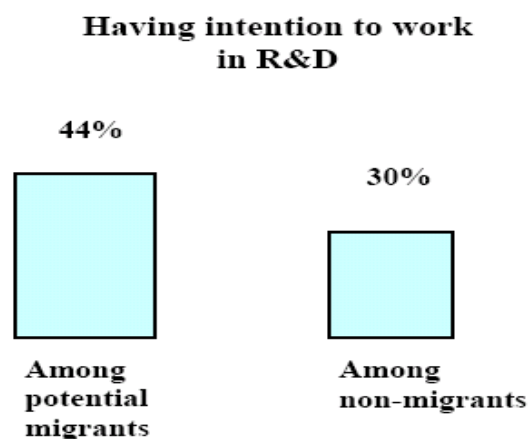
### 3. The Migration of Russian and Ukrainian Researchers and University Teachers

Since the collapse of the Soviet Union the loss of highly qualified personnel from the Russian R&D establishments has been a hot issue in political debates. However, it has two rather different dimensions. By far the larger part of the losses is due to the internal migration of highly skilled personnel from the R&D establishments to other branches of Russian economy. As compared to this loss, the emigration of scientists seems to be negligible. In fact, nobody has ever established this loss in exact numbers. Nevertheless, the issue is publicly regarded as very relevant. Following the stabilization of Russian economy and politics, strategies for handling the issue under the new conditions are publicly discussed and some of these strategies are being applied.

One may only wonder about the cognitive background of the above strategies. No representative studies on the accomplished emigration of Russian R&D personnel or on the trans-national migration potential of Russian scientists are internationally known. Most probably, such studies have not been carried out indeed. What is internationally known concerns small scale surveys on graduate students. In 2003, Lyudmila Ledeneva and Yelena Nekipelova conducted a survey at six faculties (Mathematical, Biological, Physical, Chemical, Computing & Cybernetics, Economics) of the elite Moscow State Lomonosov University. According to the data 44 percent of the 465 respondents articulated a migration intention. Even more relevant is the conclusion, that a much larger part of the potential emigrants would like to develop carriers in R&D than in the group which definitely would like to stay in the country.<sup>8</sup>

*Figure*

#### Migration intentions of Russian graduate students



Another survey conducted by Olga Tchudinovskikh and Michail Denisenko on graduate students in five cities of Russia (Moscow, Saint-Petersburg, Yekaterinburg, Ufa, Smolensk) revealed a differentiated and confusing picture. The authors of the survey conclude that ‘emigration intentions of Russian students are strongly exaggerated’, but nevertheless the migration potential of graduate students (sample of 824) seems to be quite high. Over one

<sup>8</sup> Ivakhnyuk; Irina (2006) *Brain Drain from Russia...*, p.8: See for more details Ledeneva, Lyudmila and Nekipelova, Yelena (2003) *Emigracionniye namerenija elitarnoj naučnoj molodeži* [Emigration intentions of the elitist academic youth]. <http://demoscope.ru/weekly/2003/0115/tema06.php>

third of them has “definitely decided to leave” or was “seeking a way to leave” the country. In Moscow this percentage is higher while in Smolensk it does not exceed 15%. The 14% of respondents who have not come to any definite decision could also include students who will leave the country. The most preferred type of migration is a long-term (over 1 year) on a contract basis.<sup>9</sup> Irina Ivakhnyuk summarized these and other findings of migration trends and strategies in the following way: “The most preferred migration strategy (59%) is to live in Russia having an opportunity of contract work abroad, i.e. temporary labour migration. Only ¼ of the respondents would prefer to live and work in Russia while the overwhelming majority would like to apply their professional knowledge at the international level. Surely, it is just a model of behaviour or a ‘dream’ that will not be realized by all of them. However, the results of the survey demonstrate the moods dominating among the elitist Russian students.”<sup>10</sup>

Whatever the reliability of this scarce data and the possibility to draw generalizations on its basis, it might be most probably taken for granted that the potential for trans-national migration of the future Russian R&D personnel is high. Most probably, this potential will at least partly materialize in the future. According to Irina Ivakhnyuk, the Russian authorities consider to apply or already apply the following measures to regulate the process under the new conditions:<sup>11</sup>

- Reorganization of the R&D sector in order to support prospective scientists and scientific schools;
- Restructuring of economy with a special emphasis on HT sector:
- Encouragement of private investments in R&D;
- Development of ‘technology-parks’, ‘business-incubators’, ‘HT zones’;
- Organization of ‘breakthrough labs’;
- Crediting students;
- Interstate cooperation in R&D.

All these administrative measures are necessary in order to stabilize the Russian scientific community after the period of deep crisis in the funding of science and general administrative disorganization. But neither one of them nor all of them could manage to curb trans-national migration or emigration of Russian scientists since these actions are taken by highly individualized personalities in a macro-social context which makes administrative restrictions on trans-national mobility partly possible but not efficient any more.

The out-migration of highly skilled specialists is a hot political issue in the Ukraine as well. However, according to the available information<sup>12</sup> the knowledge-base of these discussions is even less elaborated than in Russia. There is no reference to any reliable statistical source concerning the size of the emigration of Ukrainian scientists. The widely cited and discussed data on the shrinking of the labour force engaged in R&D in the country says practically nothing in this respect since it does not discriminate between the persons who have moved

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<sup>9</sup> Čudinovskich, Olga; Denisenko, Mikhail: Gde chotjat žit’ vypuskniki rossijskich vuzov? [Where do the graduates from Russian universities want to live?]. 2003.

<http://demoscope.ru/weekly/2003/0119/tema05.php>

<sup>10</sup> Ivakhnyuk, Irina (2006) *Brain Drain from Russia: In Search for a Solution*. Warsaw: Center for International Relations. ‘Reports and Analyses’ N 15, p. 6. [http://www.csm.org.pl/en/files/raports/2006/rap\\_i\\_an\\_1506a.pdf](http://www.csm.org.pl/en/files/raports/2006/rap_i_an_1506a.pdf)

<sup>11</sup> See Ivakhnyuk, Irina (2006) *Brain Drain from Russia: in Search for a Solution...*, pp. 11-12.

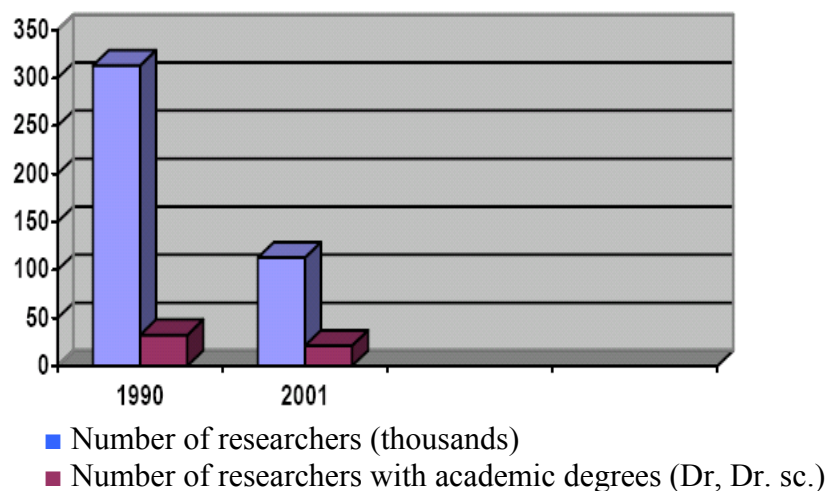
<sup>12</sup> Parkhomenko, Nataliya (2006) *Brain Drain” from Ukraine: Current Situation and Future Challenges*. Kiev: Center for Peace, Conversion and Foreign Policy of Ukraine. Policy Paper N 3 [http://cpcfpu.org.ua/en/projects/foreignpolicy/papers/306/..](http://cpcfpu.org.ua/en/projects/foreignpolicy/papers/306/)



from science to another branch of Ukrainian economy and R&D personnel which had really emigrated from the country<sup>13</sup>:

*Figure*

**Research personnel at the National Academy of Science of Ukraine**



It seems also that there is no reliable information about the trans-national migration potential of Ukrainian scientists. Given the unstable political situation in the country, both the serious studies on the above hot issues as well as the state measures for regulating the process of trans-national migration of Ukrainian scientists will need to wait for a while.

In the meantime, well designed, organized and funded studies might fill in the obvious gap of primary information concerning the trans-national mobility potential of Russian and Ukrainian scientists. This is a task which has very much to do with the interest of the European Union to regulate its relationships with the new neighbours.

#### 4. Fostering the Studies on Trans-national Mobility of Scientists

There are several general theoretical and methodical questions related to ‘brain drain’ and migration studies. One of the major challenges concerns the **definition, identification and interpretation of brain drain**, including the difficulty to discriminate between actual ‘brain drain’ and international skills (knowledge) mobility, in particular migration for studying or training purposes. ‘Brain drain’ is always seen as a loss of human and scientific capital for the country of origin. In quantitative terms, most researchers describe an outflow of ten percent of a country’s scientific workforce as ‘brain drain’. However, the international mobility of university students has to be considered as a relevant, and in principle desirable part, of intellectual mobility<sup>14</sup>, which can be determined by individual needs and choices, or by the policies carried out by governments or supra-national organisation (as in the case of Erasmus programme). Most studies show that host countries benefit considerably from foreign students, particularly in the sense of a pool of human resources for developing their R&D

<sup>13</sup> Parkhomenko, Natalia (2006) *Migration of highly-qualified professionals from Ukraine: current situation and future threats*. Warsaw: Center for International Relations, Reports and Analyses N 18. [http://www.csm.org.pl/en/files/raports/2006/rap\\_i\\_an\\_1806a.pdf](http://www.csm.org.pl/en/files/raports/2006/rap_i_an_1806a.pdf), p. 3.

<sup>14</sup> Compare Todisco, E.(2000) *Mobilità dei cervelli e mobilità delle conoscenze, Atti del Convegno Internazionale ‘Migrazioni e scenari per il XXI secolo’*. Sessione di Firenze, Firenze, 27-30 settembre.

capacities. But the migration of university students is not equal to the migration of scientists at all.

Another challenge in international migration research is the **definition and measurement of mass migration as compared to the migration of skilled labour force and particularly to the migration of scientists**. In difference to general labour migration, in skilled migration ‘pull factors’ are prevalent, for highly educated migrants are more conscious beforehand of what they want to accomplish.<sup>15</sup> According to available studies, for example the World Bank's recent *Global Economic Prospects on Migration and Remittances* which examines this phenomenon in greater depth, ‘brain drain’ losses seem to be restricted to small and/or very poor countries.

Whatever the definitions and the details, the ‘brain drain’ and ‘brain gain’ phenomena are relevant, for they belong to the key factors facilitating or hindering the development of knowledge-based economies. There are serious academic studies and reports of the European Union which emphasize the negative impact of ‘brain drain’ for Europe’s ability to compete internationally, in particular against the USA. In a survey, updated February 2006, Pierpaolo Giannoccolo analyses the ‘brain drain’ strategies of individual European states with a view to the efforts of the European Union to develop a common *European Research Area*.<sup>16</sup>

Given the experience from the above conceptual discussions and the important practical problems connected with them, the theoretical framework of the present paper is based on the following nominal definitions:

- **“Professional career”**: the sequence of goals, decisions and events marking the occupational biography of educated and trained persons.
- **“Desires concerning professional career”**: visions about what one would like to do and to achieve in the professional career;
- **“Opportunities for professional career”**: options and constraints for developing the occupational biography of educated and trained persons.

The theoretical model of the discussion is guided by the assumption that the professional career in R&D is a typical example of highly competitive professional paths promising the possibility for a high degree of individual self-realisation and satisfaction.<sup>17</sup> In addition, the theoretical model is guided by the following general ideas:

- *The desires of individuals are the major moving force of their decisions and behaviour*. This idea stems mostly from the Abraham Maslow’s theory of motivation.<sup>18</sup>
- *In the goal-setting of the individuals the motivating influence of desires is moderated by assessments of opportunities provided by the institutional environment of decision and behaviour*. The idea is mostly related to the body of the self-determination theory.<sup>19</sup>

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<sup>15</sup> Todisco, Enrico (2003) ‘Human, Brain and Knowledge Mobility’. In: Hansen, Wendy. Ed. *The Brain-Drain - Emigration Flows for Qualified Scientists. Part 2: Defining Brain Drain*, p. 23.  
[http://www.merit.unimaas.nl/braindrain/Part2-Defining\\_Brain\\_Drain.pdf](http://www.merit.unimaas.nl/braindrain/Part2-Defining_Brain_Drain.pdf)

<sup>16</sup> Ibid.

<sup>17</sup> See Rothwell, Nancy (2002) *Who Wants To Be a Scientist?; choosing science as a career*. Cambridge and New York: Cambridge University Press; Easton, Thomas A. (2004) *Careers in Science*. Chicago: VGM, 4<sup>th</sup> ed., 2004

<sup>18</sup> See Maslow, Abraham H. (1970) *Motivation and Personality*. New York: Harper & Row.

<sup>19</sup> See Deci, Edward L.; Ryan, Richard M.(1985) *Intrinsic Motivation and Self-determination in Human Behavior*. New York: Plenum.

- The goals in goal-setting follow rankings due to the connection of specific desires to specific opportunities and to the intensity of desires. The idea is mostly influenced by elaborations in the field of the goal-setting theory.<sup>20</sup>

The starting point of the potential descriptive and explanatory procedures is the status of the individual scientist under scrutiny. At first, we have to explore the decision to achieve a higher formalized or non-formalized status. We may focus on four types of predictors (P) for this decision:

- PA: Influence of the institutional environment;
- PB: Influence of education as knowledge acquisition;
- PC: Influence of personal professional aspirations;
- PD: Influence of personal circumstances.

We may take the following predictors of *desires* for future professional career of scientists into account:

- PAa: Desires about economic resources, power and prestige connected with professional careers in R&D;
- PBa: Desires about knowledge acquisition as a motivation for a career in R&D;
- PCa: Desires about the personal capacities to develop a professional career in R&D;
- PDa: Desires about personal circumstances (age, family, etc.) supporting the professional career in R&D.

The basically positive visions closely connected with the desires for professional career in the field of R&D should be theoretically and empirically moderated by *assessments of opportunities*:

- PAb: Assessments of the economic, political and cultural options and constraints, particularly constraints in the national scientific community in the country of origin;
- PBb: Assessments of options and constraints concerning the real value of scientific knowledge acquisition in the local social environment;
- PCb: Assessments of options and constraints concerning the personal capacities to develop professional career in the R&D.
- PDb: Assessment of options and constraints from the personal circumstances (age, family, etc) hindering the professional career in the field of R&D.

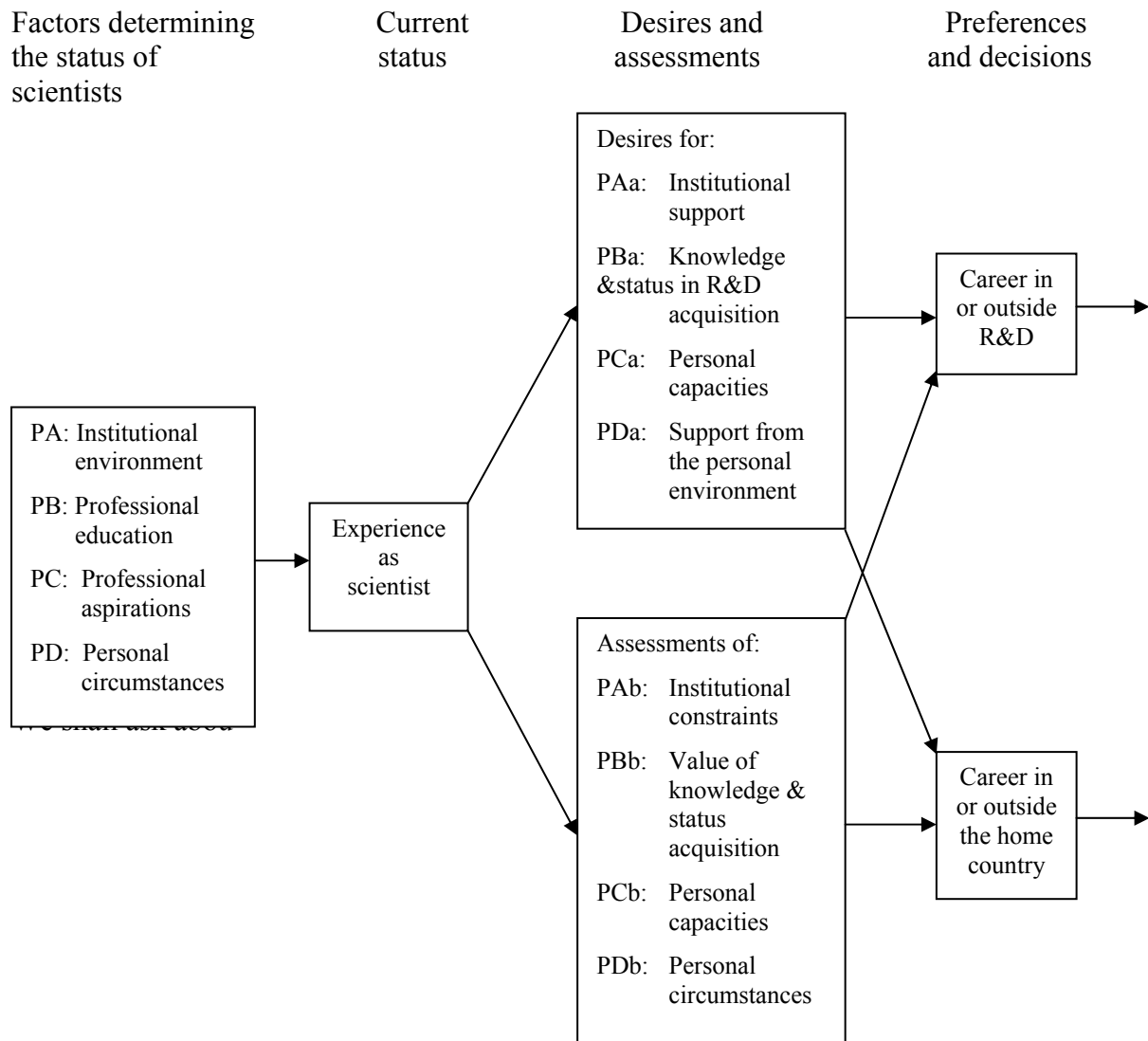
At this point of elaboration on the theoretical scheme we may ask about the intensity of two types of desires: *First*, the desire to continue a professional career in R&D or to depart from this occupational path. *Second*, to move to another country for continuing the professional path in the R&D or not. Thus, the schematic outlook of a theoretical model of the discussion project is the following:

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<sup>20</sup> See Locke, Edwin A.; Latham, Gary P. (1990) *A Theory of Goal Setting and Task Performance*. Englewood Cliffs, N.J.: Prentice Hall.

*Figure 1*

**Desires and assessments of opportunities modelling the decisions for future professional career of Russian and Ukrainian scientists**



The operationalization of the above theoretical scheme might be carried out along the following pattern:

PA: To which extent economic arrangements determined the decision to take the status of a scientist?

PAa: To which extent desires for economic prosperity determine the decisions:  
- To develop professional career in R&D;  
- To develop professional career abroad.

PAb: To which extent the assessments of opportunities for economic prosperity determine the decisions:  
- To develop professional career in R&D;  
- To develop professional career abroad.

The operationalization could be elaborated further on into a questionnaire for face-to-face structured interviews with scientists. As a rule, the measurement will follow the typical five point scale ranging from “not at all” (1) to “very much” (5). The primary data could be collected by interviewing of all available scientists in selected R&D institutions.

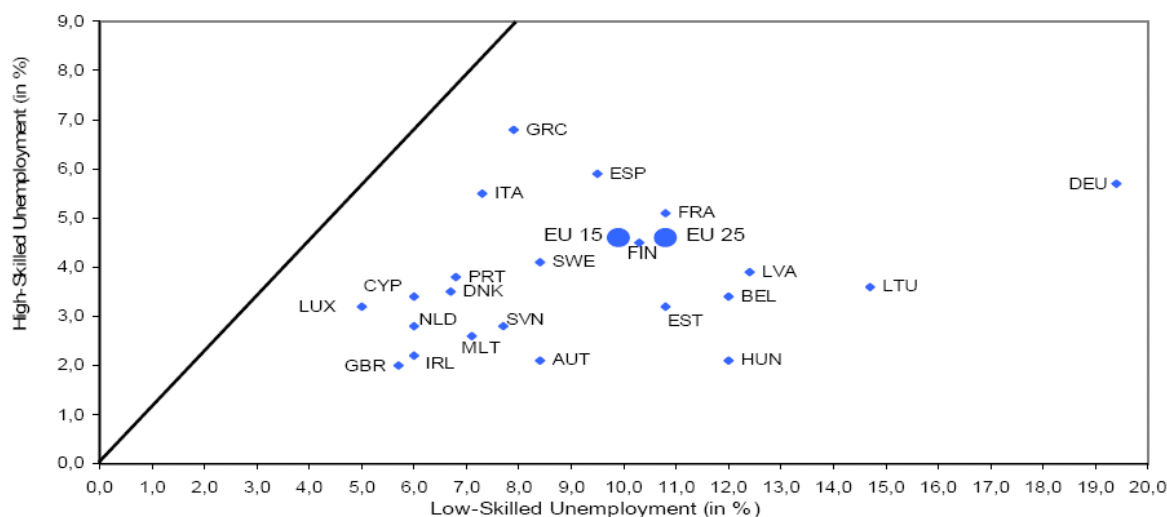
The research activities suggested in this way would only make sense provided there is a clear interest on the part of the European Union to regulate the relationships with its new neighbours in an open way based on considerations for ‘win-win’ policies.

## 5. Wellcome to Europe?

At the first glance, there could be nothing more self-understandable for the EU than the policy of attraction of the best and brightest scientists from all over the world. This policy could be only in accordance with the goals of the Lisbon Strategy of the Union (2000). In practice, there are still projects to introduce a common policy of the EU concerning the attraction of highly qualified scientists and migrants indeed as this has been the case in Canada or Australia for decades. One of the explanations for this situation is the difference of the labour markets in the particular EU countries. In some of them (Greece, Spain, Germany, Italy, France) the labour market is marked by a high level of unemployment among highly educated segments of society. The national science is saturated there by the supply of local labour force. According to the statistics, in other EU member countries (Great Britain, Ireland, Austria) there are possibilities to accommodate highly skilled immigrants, potentially from Russia or the Ukraine<sup>21</sup>

*Figure*

**Unemployment in the European Union by skill level**



These differences could only be a formal obstacle in the way of developing a common European policy concerning the attraction of highly skilled labour force mostly in R&D. The policy could be called “European Blue Card”, for instance.<sup>22</sup>

<sup>21</sup> See Weizsäcker, Jakob von (2006) *Welcome to Europe: A European Blue Card Proposal*. Warsaw: Centre for International Relations, p. 11.

<sup>22</sup> *Ibid.*, p.14.

## 5. Conclusions

It is very sobering to notice the current rather underdeveloped research on a topic which seems to be of utmost importance for the implementation of the Lisbon Strategy of the European Union. Obviously, the relations of the EU with its new neighbours Russia and Ukraine in the field of scientific cooperation should be based on a body of research findings about migration streams of scientists in both countries, their national policies concerning the migration of scientists, the absorption capability of ERA and the policies of the EU and EU member states concerning migration of scientists from third countries. This body of knowledge currently exists only in a very rough outline. It is an urgent need to improve the situation by focusing the research interest and funding on systematic studies of the relevant issues. FP7 of the EU is certainly the best organizational frame to design and implement these studies. The present paper provides some examples of concepts and methodological approaches which promise desirable and possible results of these studies. Since the topic of the migration of scientists is particularly sensitive, the most promising scheme for regulating it in the relationships between the European Union, on the one side, and Russia and Ukraine, on the other, seems to be the scheme of *mobility partnerships*.<sup>23</sup> This approach might secure avoidance of the widely discussed *brain-drain* and *brain-waste* and lead the new neighbours and partners to the very much desirable situation of *brain circulation*. No doubt, as in many other fields, also the cooperation in science between the above parties might be influenced by substantial political fluctuations. However, it has no alternative in the long run.<sup>24</sup>

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<sup>23</sup> See *Applying the Global Approach to Migration to the Eastern and South-Eastern Regions Neighbouring the European Union* (2007) Brussels, 16.5.2007, COM(2007)247 final, p. 8.

<sup>24</sup> See for instance Timmermann, Heinz (2007) 'Die deutsch-russischen Beziehungen im europäischen Kontext'. *Internationale Politik und Gesellschaft*, N. 1, pp. 101-122.