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POLICY PAPER

G. Kharlamova, PhD in Economics, Associate Professor
Taras Shevchenko National University of Kyiv, Kyiv

KNOWLEDGE-BASED MIGRATION AND MOBILITY: THE ECONOMIC 'GAMBLE' OF THE EASTERN NEIGHBOURHOOD

To what extent can the scientific migration and mobility, and remittances impact the economic development of the donor and recipient states? How significant are they as a resource for the enhancement of the Eastern Partnership? The policy brief provides the results of the quantitative assessment of the costs and benefits of "smart" labour migration in the Eastern Partnership (EaP) countries and proposes some policy recommendations to enhance the benefits stemming from knowledge-based migration and mobility flows. We received the proof of mutual causality between human development indicator of donor-state and most significant performance indicators of EaP migration in the EU ("smart mobility"). This means that HDI of a donor-state is flexible to the internal situation in the country, and so the positive effect of smart mobility and remittance inflows can be easily absorbed inside the EaP. The same we observed for gross national income of EaP donor-states. However, our approach does not provide the answer: what is exactly the effect or the result. The convergence effect of scientific migration in the EU and the Eastern Partnership region is considered on the ground of the calculative assessment. We considered "β-convergence" approach, stating that it occurs when the EaP mobility rate grows faster than the EU ones. As for σ-convergence, we defined it as a reduction of future rates of variation (inequality, differentiation) in the levels of migration of regions (countries). We can conclude that there is the convergence between the EU & EaP in the scientific migration in the years of the EaP initiation, but no results in the process of its fulfilment.

Keywords: Eastern Partnership; knowledge-base migration; European Union; correlation; mobility; assessment; convergence.

Introduction.

Migration's significance is increasing, especially in the European countries, being fostered and reinforced by the economic integration between the European countries through the emergence of supranational institutions such as the European Union (EU) and its neighbourhood programmes. In the EaP countries, the migration has an important role in facilitating the economic restructuring. It helps "old" jobs to be eliminated. Thus, the labour surplus is reduced, allowing for greater productivity of those workers remaining in the country, and, consequently, resulted in higher wages over time. There are a number of shortcomings in the current migration policy framework between the European Union and the countries of the Eastern Partnership (EaP). The process is far from satisfactory and leads to reduced benefits for both sending and receiving countries and the migrants themselves.

Approach to the migration: benefits and advantages evidence.

No doubted fact is that international migration can have a strong impact on the living standards of vast numbers of individuals and on the financial stability of countries. Yet the policy framework of migration and development remains relatively weak (Newland, 2013). The evidence supporting direct linkages between migration and development is not well known to policymakers, particularly (Barbone, et al. 2013). Sometimes migration is seen as a drain on a donor-country's human resources, rather than an opportunity for those who leave to become more productive and, if the circumstances are right, to contribute more to their countries of origin than if they had remained.

Quite obvious, that the migration has various impacts on the society as it creates flows of people, money, and knowledge between countries. The Bilateral Remittance Matrix 2012 (World Bank 2012), for instance, displays such financial impact and exhibits that the total amount of the worldwide inwards and outwards remittance in 2012 was approximately 529 billion USD. Such a monetary flow is an important financial source for the country with the weak economic power. It contributes to the reduction of poverty by bringing in capital to finance development, and to spread modern methods of production and better quality of life. The migration contributes to modernisation at a global scale. According to the UN data, the increase of migrants by 8% will provide global assets increase of 0.6% in the poor countries. For rich countries, an increase in quantity by 1.8% will provide an increase in assets by 0.4% (UN, 2014). A CASE project entitled "Costs and Benefits of Labour Mobility between the EU and the Eastern Partner Partnership Countries" declared the same correlation range approving the binding "migration – development" (Biavaschi & Zimmermann, 2013; Marchetti, et al., 2013).

Can the scientific migration and mobility impact the economic development of the donor and recipient states: literature review.

Approach to the migration itself is changing around the world. The UNESCO Science Report, *Towards 2030*, launched 10 November 2015 says that the science will play a key role in realizing Agenda 2030. The main body of the report focuses on *the scientific migration and mobility*. In search of effective growth strategy, the science is a new framework for the sustainable growth.

There is quite a large body of literature that tackles the complex encompassing such issues as international (scientific) migration, capital transfer (remittances), and economic development. Research into the policy and statistics concerned with the movement of educated people has quite a long and differentiated history. However, just a few papers on the topic of "scientific migration and mobility" (exactly) could be found in the research space of the EaP, but nothing that focuses on the link to the EU trends (Zhylinska, 2012). The notorious "brain drain/gain" (or the external scientific migration of university academics and students) is only part of the processes that relate to the scientific mobility. The titles given to the international scientific movement with the expertise and aptitudes are highly regarded and in demand around the world (Fahey and Kenway, 2010).

However, since the rise of the notion of the knowledge economy (the force of the innovations in the skilled hands of educated human capital), many states as well as the EU have developed policies that suit their specific geopolitical situation. Particularly, there launched EPAM – European NGO Platform for Asylum and Migration; The Eastern Partnership Panel on Migration and Asylum; the European Commission's flagship scientific mobility scheme (the Marie Curie Fellowship Scheme) etc. Much the EU-EaP government policy on the international mobility of the highly skilled arises from the research on migration, labour mobility and remittances. The target point is a national

economic growth, competitiveness, growing regional interdependence and convergence.

Nevertheless, the current migration policy framework between the European Union and the countries of the Eastern Partnership is far from satisfactory and leads to reduced benefits for both sending and receiving countries (and the migrants themselves). Both the relevant literature and also various political trends suggest that there is a distinct need for the EU to determine the conditions necessary for the successful implementation of agreements and other measures that would regulate the relevant ever-spreading phenomenon of inter-European migration currently blocked. In this regard, it should be noted that several Eastern Partnership countries have been successful in concluding bilateral agreements with individual EU countries, while others seem to be still lagging behind. Fine examples of such agreement can be seen in the case of Belarus which has concluded agreements on the social security of migrants with Latvia and Lithuania or the significant bilateral treaties signed by Ukraine and Moldova with individual EU countries on matters such as labour conditions, social security payments and benefits, migrants' welfare and other matters.

In the EU member states, it is common for scientists being participants of scientific migration: the careers of doctorate-holders survey reveals that, on average, between 5% and 29% of citizens with a doctorate have gained research experience abroad for three months or longer in the past 10 years (UNESCO Science Report, 2015). However, most scientific migrants from the Eastern Partnership countries are temporary migrants in the sense that they continue to belong to a household in their home country, even if they work abroad for a long time (CASE project, 2011).

Results: what did we learn?

Before coming to the methodology the obvious issue is to settle definitions and determinants. However, there is still no universal term for the scientific mobility and its exact determinants. The *scientific migration* is something conceptually different from the scientific knowledge transfer and diffusion of science. It is mostly a movement of scientists from the peripheries towards scientific centres for conducting research and any other scientific activity. Mainly it is initiated not by the migrants itself, but by available abilities, programmes in the recipient state. Thus, the scientific migration and mobility should be distinguished as not-spontaneous, mostly forced, regulated.

When we talk about the scientific mobility, mostly we mean academic mobility referring to students and teachers in higher education moving to another institution inside or outside their own country to study or teach for a limited time.

The scientific migration engages two key concepts (Ackers, 2005):

(1) the concept of skill or knowledge;

(2) the concept of migration itself.

Agreeing with ImpactE Literature Review and Ackers L., analysing the impact of scientific migration/mobility requires an understanding of who is moving (and the quality of their skills) and the nature of their migration. This might include consideration of the direction of flows; their frequency, duration, and permanency; and the propensity to return. In order to evaluate the impact of these processes on the

EU-EaP region and develop appropriate policy responses, we need to examine the relationship between the scientific mobility (the transfer of knowledge) and the regional development indicators. This lead to the following question: *what variables to use for the scientific migration/mobility assessment and its impact.*

The following factors and determinants of scientific migration could be considered: scientific knowledge of particular migrant (remains as internal, implicit factor); collaboration network; co-authorship; remittances received. In our research, we took the Human Development Index (HDI) as the main dependent variable. HDI measures the national achievements in human development based on three essential components of the human life: a long and healthy life, access to knowledge and a decent standard of living (according to UNDP classification).

In the same vein with change in HDI, we use GNI (formerly GNP) – the sum of value added by all resident producers plus any product taxes (less subsidies) not included in the valuation of output plus net receipts of primary income (compensation of employees and property income) from abroad (according to UNICEF definitions) – as an alternative dependent variable to measure the impact of scientific mobility only on economic development.

As well, having in mind the convergence approach in economics (also at times known as the catching-up effect), – the hypothesis that poorer economies' per capita incomes will tend to grow at faster rates than richer economies (according Wikipedia), – we consider to adapt it for the so called "*scientific migration convergence*". Therefore, we assume the reduction in the dispersion of levels of migration determinants (mostly with tertiary education) across economies. Thus, we consider "β-convergence" approach stating that it occurs when the EaP mobility rate grows faster than the EU ones. As for σ-convergence, we define it as a reduction of future rates of variation (inequality, differentiation) in the levels of migration of regions (countries). Not only rates of variation can be used, but as well the variance or standard deviation. The most informative indicator is the rate of variation, for the reason that it does not depend on the dimension and scale of variables. Variance and standard deviation are impractical to use in the presence of inflation (Young et al, 2008). By means of such tools and approach, we attempt to check *the existence of a scientific convergence phenomenon for the inherent dynamics of the EU and the EaP connected with scientific migration and its spillovers / determinants.*

For particular sound results, the Granger approach helped us to understand what is the main indicator and what factor can cause. Implementation of Granger causality test provided us with such resulting claims (at the appropriate level of F-stat): we cannot reject the hypothesis that all performance indicators does not Granger cause HDI of donor-state and we do not reject the hypothesis that HDI does not Granger cause the indicators (for all analysed indicators). Therefore, it appears that Granger causality runs two-ways for Human development indicator of donor-state and most significant performance indicators of EaP migration ("smart mobility") in the EU. This means that HDI is flexible to the internal situation in the country, and the positive effect of smart mobility and remittance inflows can be easily absorbed inside the EaP. The same we observed for GNI. Note, Granger causality does not provide the answer: what is exactly the effect or the result.

On the base of correlation analyses, we received that the interconnection of HDI in the EaP and all analysed variables for the EU have a sound negative correlation, thus increasing these indicators' level in the EU would decrease the level of HDI in the donor-EaP-state. We could assume that the reason is in the rapid increasing of migration to the EU in the considered retrospective time period. As well, we received that remittances are in exceptionally low correlation with development variables in the donor-EaP-states. Having statistic prove of significance of the results we as well

received a control variable (international collaboration) tightly connected with International migrant stock (% of population) (directly), but still in low correlation with other analysed variables for the EaP-EU.

Used calculative approach provides the conclusion that the largest impact on the donor-development has the level of expenditures on the research in the recipient, that proves the hypothesis of Diaspora impact, science-centers attraction capacity and involving best practices during "smart" mobility. As to remittances, the impact of inflows in the EU is high, as in donor state, however quite obviously it is opposite. However, the elasticity mostly is not crucial as lower than 1. As to migration variables, we witness positive and high elasticity. As to GNI, we received mostly same results.

We can conclude that there is the convergence between the EU & EaP in the scientific migration in the years of the EaP initiation, but no results in the process of its fulfilment. Although, the asymmetry shows how much data is distributed asymmetrically with respect to the normal distribution: having A > 0 in the period we conclude that much of the data has a value greater than the average over the EaP+EU. However, convergence seen in the EU in the first years of the Union, dramatically failed in the years of the EU enlargement in the aspect of analysed the scientific migration spillovers determinants latter mentioned, and the first EaP years had real potential to converge the region to the EU but failed in following years.

Conclusion and Recommendations.

Widely known, that the mobility of scientists is a social and anthropological phenomenon that encourages scientific growth and spread of knowledge. At any rate, it can support further technical and innovative development of the state. The scientific activities of migrants have a colossal potential for the development of economic, political and social processes of the modern EU and, of course, in the states of their origin. The challenge is only in creating an optimal balance between emigration and immigration of scientists in the EU-EaP economies: for the EaP not having the "brain drain", for the EU – to launch an effective policy to absorb the potential of the scientific migrants' capacity ("brain gain").

This policy brief is an attempt to generate new insights pertaining to the international scientific mobility that marks the relationship between the Eastern Partnership Countries and the EU as a whole. The proposed assignment can also boost the following development of strategies and game policies so as to turn the brain-power (i.e., scientists) into main stakeholders of the economic and democratic development process in the state of the origin of these scientists.

The impact of the international mobility on the economic characteristics of the scientific and educational systems is still poorly understood. The research done is targeted to support well-grounded opinions for increased knowledge – based mobility between the EaP and the EU. Applying the sound calculative approach, we claim that there is the convergence between the EU & EaP in the scientific migration in the years of the EaP initiation, but no results in the process of its fulfilment. Thus, the started initiatives and policies seems to be not efficient for EU-EaP interrelations. As well, the role of remittances of scientific migrants/mobility is still low for EU-EaP case. Despite the internal potential of our approach, to provide the answer: *does the scientific migration/mobility have a sound impact on the donor/recipient's development?* – for the considered time of EaP history, we still have no enough evidence to state this.

It is widely known that the benefit to the donor country may consist of the development of contacts with the scientific Diaspora. We did not receive opposite, but as well did not statistically prove this.

The European Union faces growing skill shortages in its labour markets, mainly as a consequence of adverse demographic trends in Europe. Developing measures to allow the enhancement of scientific cooperation and mobility of researchers so as to contribute to enhanced understanding between the EU and the EaP countries in the area of scientific and technological sustainable development should become the core of EU policies. This will also better regulate the participation of scientific migration community in the political process of their countries of origin.

For the EaP country we can recommend:

- The adoption of a scientific migration lens in all aspects of public policies that affect migration and its out-comes, through explicit incorporation of scientific migration issues in national macroeconomic and educational strategies as well as sectoral action plans (special banking projects, competition bursting, etc). Support for macroeconomic development projects that aim at sustainable development and connection to EU policies and standards in EaP;
- The adoption of a strategic vision for labour migration (mostly educated migrants), and eventually the designation of a single national entity to coordinate and facilitate "brain" labour migration strategies and mobility of researchers.
- To include scientific migration policy while developing national educational paradigm and legal issues: considering EaP universities as global players, simultaneously increasingly develop the science as the policy interface in EU-EaP. In the nutshell, tracking trends in the scientific migration and mobility could support the assessment of the EU-EaP policy success and future sustainable development.

To understand the relationship between highly skilled (educated) scientific migration and the transfer of knowledge within the European Union through conceptualization the phenomenon and then developing of the appropriate operational tools our recommendations for the EU could be following:

- The adoption of a visa-free travel regime for scientists/researchers/ academia;
- Development of special financial policy in the aspect of involvement migrant remittances in cross-border regions;
- Enhancement of complementary migrant integration policies, including skill transferability, scientific cooperation, recognition of social rights, reduction of informational gaps, management of public opinion and involvement of relevant stakeholders. In the context of the Scientific Mobility Partnerships, The EU should encourage member countries to launch some pilot programs specifically targeted for the EaP nationals to access to the EU labour market.

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Г. Харламова, канд. екон. наук, доц.
Київський національний університет імені Тараса Шевченка, Київ, Україна

МІГРАЦІЯ ТА МОБІЛЬНІСТЬ ЗАСНОВАНІ НА ЗНАННЯХ: ЕКОНОМІЧНА АВАНТЮРА ДЛЯ СХІДНОГО ПАРТНЕРСТВА

Якою мірою наукова міграція та мобільність, а також грошові перекази впливають на економічний розвиток держав, донора і реципієнта? Наскільки істотні ці міграційні потоки в якості ресурсу для зміцнення Східного партнерства? Стаття представляє результати кількісної оцінки витрат і вигод від "розумної" трудової міграції в країнах Східного партнерства і пропонує деякі рекомендації з питань політики в цілях підвищення вигод, що випливають із заснованої на знаннях міграції та мобільності. Ми отримали доказ взаємної причинності між індикатором людського розвитку донора-держава і найбільш значущих показників ефективності міграції з Східного партнерства в ЄС ("розумної мобільності"). Це означає, що ІРЛП держави-донора є гнучким до внутрішньої ситуації в країні, і тому позитивний ефект від припливу смарт-мобільності і переказу грошових коштів може бути легко поглиненим усередині Східного партнерства. Те ж саме ми спостерігали для впливу валового національного доходу країн-донорів Східного партнерства. Проте, наш підхід не дає відповіді: що саме є ефектом, а що – результат. Ефект конвергенції наукової міграції в ЄС і регіону Східного партнерства розглядається на підставі кількісної. Ми розглянули "β-конвергенцію", вважаючи, що це відбувається, коли швидкість міграції з Східного партнерства зростає швидше, ніж з ЄС. Що стосується σ-конвергенції, ми визначили її як скорочення майбутніх темпів зміни (нерівність, диференціації) в рівнях міграції з регіонів (країн). Ми можемо зробити висновок, що в науковій міграції зближення між ЄС та країнами Східного партнерства відбулося в роки започаткування Східного партнерства, але нема жодного поштовху в процесі його виконання.

Ключові слова: Східне партнерство; смарт-міграція; Європейський Союз; кореляція; мобільність; оцінка; конвергенція.

Г. Харламова, канд. экон. наук, доц.
Киевский национальный университет имени Тараса Шевченко, Киев, Украина

МИГРАЦИЯ И МОБИЛЬНОСТЬ ОСНОВАННЫЕ НА ЗНАНИЯХ: ЭКОНОМИЧЕСКАЯ АВАНТЮРА ДЛЯ ВОСТОЧНОГО ПАРТНЕРСТВА

Насколько научная миграция и мобильность, а также денежные переводы влияют на экономическое развитие государств, донора и реципиента? Насколько существенны эти миграционные потоки в качестве ресурса для укрепления Восточного партнерства? Статья представляет результаты количественной оценки затрат и выгод от "умной" трудовой миграции в странах Восточного партнерства и предлагает некоторые рекомендации по вопросам политики в целях повышения выгод, вытекающих из основанной на знаниях миграции и мобильности. Мы получили доказательство взаимной причинности между индикатором человеческого развития донора-государство и наиболее значимых показателей эффективности миграции с Восточного партнерства в ЕС ("разумной мобильности"). Это означает, что ИРЛП государства-донора является гибким к внутренней ситуации в стране, и поэтому положительный эффект от притока смарт-мобильности и перевода денежных средств может быть легко поглощенным внутри Восточного партнерства. То же самое мы наблюдали для влияния валового национального дохода стран-доноров Восточного партнерства. Однако, наш подход не дает ответа: что именно является эффектом, а что – результат. Эффект конвергенции научной миграции в ЕС из региона Восточного партнерства рассматривается на основании количественной оценки. Мы рассмотрели "β-конвергенцию", – когда скорость миграции из Восточного партнерства растет быстрее, чем в ЕС. Что касается σ-конвергенции, мы получили результат – сокращение темпов изменения (неравенство, дифференциации) в уровнях миграции из регионов (стран). Мы можем сделать вывод, что в научной миграции сближение между ЕС и странами Восточного партнерства состоялось в годы начала Восточного партнерства, но нет ни одного сдвига в процессе его выполнения.

Ключевые слова: Восточное партнерство; смарт-миграция; Европейский Союз; корреляция; мобильность; оценка; конвергенция.