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THE RELATIONSHIP BETWEEN CROSS-BORDER LABOUR MOBILITY AND DIFFUSION OF ECO-INNOVATIONS: CASE OF UKRAINE

Abstract: The paper discusses the relationship between the cross-border labour mobility and diffusion of eco-innovative technologies. Based on the interview surveys the authors found the main directions of circle impact of cross-border cooperation, eco-innovation and open labour markets. The analysis also showed the most important restrictions for diffusion of eco-innovations in Ukraine and their effect on cross-border labour mobility.

Key words: labour market; employment; cross-border labour mobility; eco-innovations; diffusion.

Introduction

Under the modern conditions of globalization and regional integration, there is a need to introduce sustainable development mechanisms that would be in line with key global trends. Given the fact that Ukraine borders on seven countries, four of which are EU member states, establishment and extension of relations between neighboring countries is also taking place in the context of cross-border cooperation. Border regions interact in economic, social, scientific, technical, environmental, cultural, and other fields, which leads to the development of common approaches to the acceleration of their development. One of the biggest roles in this process belongs to the implementation of the EU's regulations and rules by Ukraine towards the diffusion of eco-innovations. The *eco-innovations* aim to create both economic and environmental values, and both researchers and business study the effects of innovations¹. In 2015 Diaz-Garcia et al.² provided a literature review with a summary of the different drivers to eco-innovations aggregated into three groups on the micro-, mezo- and macro levels of the economy. The identification of main trends in research works showed that the analysis of relationship between cross-border labour mobility and diffusion of innovations is currently a neglected area. Only few studies are dedicated to a mentioned problem. Karakaya et al.³ attempted to clarify the concept of diffusion of eco-innovation in literature review, and indicated the strengths and limitations of prior studies concerned of diffusion of eco-innovations. But there is a great need for inclusive eco-specific labour market and skill policies⁴. Different studies emphasized the fact that diffusion of eco-innovations requires highly qualified personnel⁵. According to Heinz and Ward-Warmedinger⁶, the evidence from the EU

¹ Hrabynskiy, I., Horin, N., Ukrayinets, L. (2017) Logit and Probit Analysis of Export Behaviour and Eco-Innovation Activity of Enterprises under Globalization: Evidence from Ukraine. // *Globalization and Its Socio-economic Consequences*, Vol. 2, pp. 709–716.

² Díaz-García, C., González-Moreno, A., Sáez-Martínez, F. J. (2015) Eco-innovation: insights from a literature review. // *Innovation: Organization and Management*, Vol. 17, Issue 1.

³ Karakaya, E., Hidalgo, A., Nuur, C. (2014) Diffusion of eco-innovations: A review. // *Renueable and Sustainable Energy Reviews*, Volume 33, May, pp. 392–399.

⁴ Greening Jobs and Skills, OECD. – <<https://www.oecd.org/greengrowth/greening-jobs-skills/greeningjobandskills.htm>>.

⁵ Rennings, K. (2000) Redefining innovation – Eco-innovation research and the contribution from ecological economics. // *Ecological Economics*, Volume 32, pp. 319–322; Horbach, J., Rammer, C., Rennings, K. (2011) Determ-

members' experiences, academic studies, the existence of barriers to cross-border labour mobility and the economic determinants of migration all indicate a moderate potential for increased migrant flows.

Challenges which Ukraine is facing in its European integration aspirations are accelerating the need to find ways of finding practical solutions to urgent problems of the labour market, eco-innovative development of regions, cross-border territories, and the country as a whole. In comparison to EU member states, Ukraine is characterized by a high level of labour migration and a low level of eco-innovative activities. Therefore, it is necessary to develop a theoretical and methodological foundation that would ensure implementation and mutual impact of cross-border cooperation in the field of labour mobility and diffusion of eco-innovations.

Developing and implementing clear and accessible mechanisms for responding effectively to the challenges of open labour markets, including the involvement of employment services, are key to effective socio-economic development in the country⁷.

The issues of effective response to the challenges of globalization and open labour markets, the major threats and opportunities that come with them, have been studied by many scholars, such as J. E. Stiglitz⁸, P. Botazzi⁹, K. A. Elliot, R. B. Freeman, R. B.¹⁰ E. Libanova¹¹, K. F. Zimmermann¹², and others. However, the mentioned process is in constant dynamics, which requires continuous study and analysis, and with it – the study of appropriate mechanisms of intervention of the employment service.

Therefore, the purpose of the paper is to examine the potential for increased cross-border labour mobility between Ukraine and the EU in the context of the integration process, to investigate the cross-border labour market, and thus to determine the relationship between cross-border labour mobility and diffusion of eco-innovations.

In our opinion, it is cross-border cooperation due to the involvement of regions from different countries, which unite for the realization of common interests, that can enhance environmental orientation of labour market policy and extend the experience of their implementation to other business entities, which will accelerate sustainable development of participating countries.

Research results

Regional cross-border entities are among the most dynamic territories in terms of their development, and they have enormous potential to become the drivers of eco-innovation activity of participating states. There is a good reason why among the five main vectors of cross-border cooperation the leading role is played by the eco-innovation-economic one (see Fig. 1), as it sets the direction and accelerates the development of human capital and R&D. Therefore, it becomes necessary to develop transport support and infrastructure within the cross-border region, and subsequently develop tourism and cultural services. Implementation of all these vectors of cross-border cooperation must ensure sustainable development of the cross-border region, increase in its competitiveness, and high quality of life.

bility nants of eco-innovations by type of environmental impact – The role of regulatory push/pull, technology push and market pull. // *Ecological Economics*, No.78, pp. 112–122.

⁶ **Heinz, F. F., Ward-Warmedinger, M.** (2006) Crossborder labour mobility within an enlarged EU, ECB Occasional Paper, No. 52, European Central Bank (ECB), Frankfurt a. M, 39 p.

⁷ **Grishnova, O.A., Risnyy, O.P.** (2017) Integration of the Ukrainian Labor Market with the European one: Threats and Prospects (an assessment on the example of the countries of Eastern Europe). // *Demography and the Social Economy*, No.3 (31), pp. 162–173.

⁸ **Stiglitz, J. E.** (2017) The overselling of globalization. // *Business Economics*, July, Volume 52, Issue 3, pp 129–137.

⁹ **Bottazzi, P.** (2019) Work and Social-Ecological Transitions: A Critical Review of Five Contrasting Approaches. // *Sustainability*, Volume 11, Number 14, pp. 3852–3860.

¹⁰ **Elliot K. A., Freeman, R. B.** (2003) Can Labor Standards Improve under Globalization? // Peterson Institute Press: All Books, Peterson Institute for International Economics, Number 338.

¹¹ **Libanova, E.M.** (2012) Social problems of modernization of the Ukrainian economy. // *Demography and the social economy*, No.1, pp. 5–22.

¹² **Zimmermann, K. F.** (2004) European Labour Mobility: Challenges and Potentials. // *IZA Discussion Paper*, No. 1410, November, 35 p.

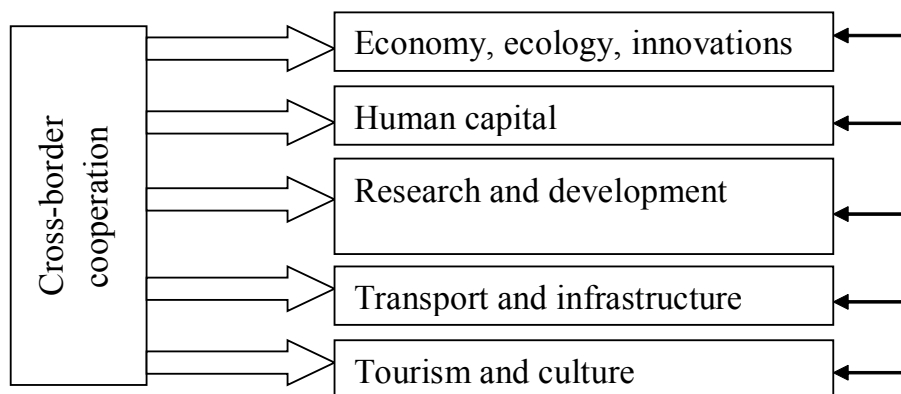


Figure 1. The vectors of cross-border cooperations
Source: Own elaboration based on the study

1. Data and Methodology

The comparative and descriptive methods have been applied in the analysis of research problem in the study. Data used for the comparative analysis are taken from the database of the State Statistics Service of Ukraine, the Eurostat, the OECD official statistics and studies. Information framework of paper is based on the EU members' and Ukrainian laws and regulations in labour market policies, and reviews of previous scientific studies. The empirical analysis of the literature has allowed to find the most important trends and problems on cross-border labour markets, with special emphasis on the jobs in the field of *eco-innovation* and green technologies.

This paper is based on a structured interview as a method of data collection in quantitative research to get a deeper understanding of main directions of cross-border labour mobility, and drivers to diffusion of eco-innovations by Ukrainian workers. The results helped us to determine the concept of labour market policy towards the ecologization.

2. Prerequisites for cross-border labour mobility in the border regions of Ukraine

The issue of labour migration and its impact on the national economy is rather multi-vector and has not yet been fully understood. On the one hand, attention is drawn to the more common aspects of its negative impact such as the outflow of labour, especially the skilled ones. This situation really creates a disproportion in the labour market in countries where such outflows occur and with it there is a noticeable shortage of qualified staff to fill the corresponding jobs. This slows down the development of individual businesses and with them the national economy.

However, such a situation contributes to a constant increase in the level of wages, because in the conditions of shortage of skilled personnel and competition for it, its price in the labour market increases accordingly.

The rise in the price of labour for the most popular professions shows a moderate increase in wages in other sectors of the economy. This is due to the fact that part of the population is retrained into scarce and overpaid specialties, reducing the supply of specialties where there is some oversupply in the labour market. Thus, there is some self-regulation in the labour market.

The outflow of workforce abroad reduces the tension on the social security system in the country. Persons who cannot realize themselves in the domestic labour market find such opportunities abroad.

Some positive aspects of the impact of labour migration on the national economy and the well-being of the population can be seen in the countries of Eastern Europe, which have recently undergone relevant market transformations, with which the income level of the population has increased significantly.

However, this situation cannot be left alone and requires a competent and effective intervention of the state. Not only does the state's operational and effective policy mitigate the negative effects of worker migration, it can also have significant economic benefits.

The State Institution "Institute for Regional Studies named after M. Dolishnyy NAN of Ukraine" together with the Lviv City Employment Center in order to study the mobility of the unemployed, their readiness for employment in Ukraine and beyond, conducted a questionnaire (at stratified sampling). Socio-demographic characteristics of the population, which greatly influence the level of its mobility, namely age,

gender and education, have become the main signs of stratification. The survey was conducted among unemployed persons who in 2013-2018 applied for services to the Lviv City Employment Center)¹³. 500 questionnaires were distributed annually. The results are shown in the Table 1.

Table 1. Responses to the question:
“What are you ready to do to quickly solve your own employment problem?” (2013–2018), % of observations

Answer options	2013	2014	2015	2016	2018
Continue actively looking for a specialty job in Ukraine	70,3	76,0	72,6	64,3	68,6
Start your own business	28,9	21,3	23,5	29,6	24,0
Change activity	26,7	22,8	20	26,4	23,7
Take a vocational training or retraining course	21,4	26,5	23,8	21,2	15,1
Get a second specialty	18,9	19,0	16	15,1	16,9
Travel to temporary jobs in other countries	5,8	6,0	8,1	6,1	6,2
To go abroad for a long time	9,7	5,8	9,5	6	6,5
To travel abroad to your permanent residence	8,9	7,5	6,8	4,1	3,8
To move to live and work in another region of Ukraine	4,4	1,5	0,9	3,8	1,2
Travel to temporary jobs in other regions of Ukraine	1,4	1,8	1,2	2,3	1,5
To do nothing	0,3	0,8	0,3	0,6	0,6
the rest	0,6	0,8	0,3	0	3,8

Source: compiled by authors

However, more than 25% answered “Do you have any plans of employment abroad in the next 5 years?” (see Fig. 2).

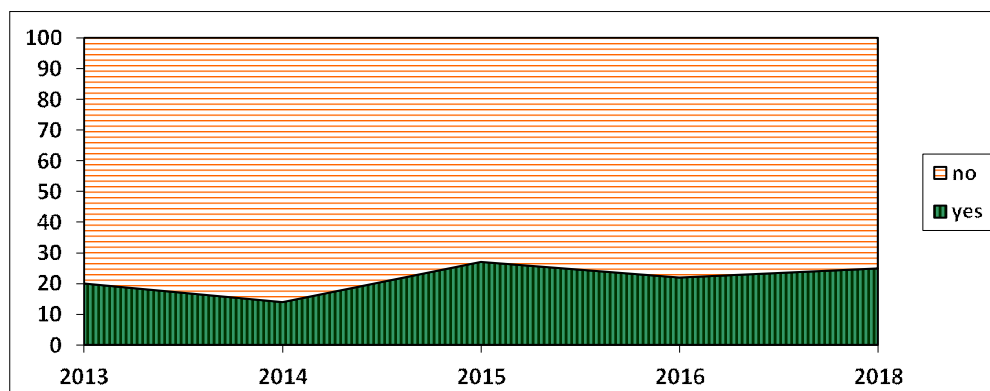


Figure 2. Answers to the question “Do you have any plans for employment abroad in the next 5 years?”
(According to the results of the panel survey 2013–2018)

Source: compiled by authors

The results of the monitoring showed a high level of territorial mobility of the respondents, in particular their readiness for external migration. In particular, half of the unemployed are potential migrants, and about one in four are “hard” migrants.

¹³ Ryndzak, O., Risnyy, O. (2018) Monitoring of mobility of unemployed population in the system of regulation of regional labor markets. // *Scientific Bulletin of the International Humanities University. Series: Economics and Management*, No. 29.

One of the fundamental values of the European community, which Ukrainian society is focused on, is the free movement of labour and capital. The openness of the labour markets creating certain problems in countries where the outflow of labour occurs but reduces the tension in these markets, positively affecting them in the long run.

On the other hand, the simpler the way to a temporary departure for work abroad, the greater the possibility of a further return when the economic situation changes or the emergence of favorable opportunities in the country of origin. In a situation where the state essentially shies away from participation in migration processes, they are going spontaneously and uncontrollably. In the presence of a large number of persons willing to work abroad, a correspondingly large number of mediators appear, many of whom work due to neglect of the current legislation, or even illegally.

This is evidenced by official data on employment of Ukrainians abroad, which is ten times less than the unofficial data of the host countries. Thus, according to official statistics, in 2017, 83.8 thousand Ukrainians were employed abroad, including 12.4 thousand in Poland. According to unofficial data, more than 5 million Ukrainians work abroad, 1.5 million of them work in Poland, and about 6 thousand Ukrainians are currently employed each month in only one city of Gdansk for example.

In such a situation, Ukrainian labour migrants often find themselves in bonded conditions abroad and find themselves unprotected by either domestic or foreign legislation. It often takes years to get through the difficult stages of finding a legitimate job that is in some way relevant to qualifications and experience. Accordingly, after the loss of such work, individuals try in every way to stay in the country of residence and often spend a considerable part of their personal savings on living and finding a new place of work.

3. Cross-border solutions for labour market in Ukraine

For the purpose of legalized and official labour mobility EU employment services have implemented the system EURES (EUROpean Employment Services) and EURES-T (or EURES Cross-border Partnerships)¹⁴.

The system database has over 3 million vacancies for 12,000 employers and nearly 400,000 online job applicants. In addition, this database is accessible to all public employment clients of EU countries, as well as Norway, Iceland, Liechtenstein and Switzerland.

The European Union / European Economic Area (EEA) public employment services provide services through a network of more than 5,000 local employment offices employing over 100,000 employees offering services to jobseekers and employers. Although these services are structured differently in each country, they all share the same basic task of promoting matching labour market demand and supply by providing information, employment and proactive support.

In Ukraine consideration should be given to joining the Employment Service within the framework of the European integration process. In particular it should be used a local opportunities of creation of EURES Cross-border Partnerships.

EURES plays a particularly important role in border regions, border regions. More than 1 million people are living in one EU country and working in another. They have to cope with different national practices and legal systems. They may face administrative, legal or fiscal obstacles to mobility on a daily basis.

EURES cross-border partnerships are groups of EURES members and partners and, where appropriate, other stakeholders outside the EURES network. The groups are involved in long-term cross-border cooperation to support the mobility of workers abroad and their employers. They typically include regional or local employment services, social partners and other organizations such as chambers of commerce, universities, vocational training organizations, local governments, etc. from at least two neighboring Member States. 9 such partnerships are successfully operating in Europe.

Such practice is particularly acceptable for domestic borderline territories in particular between Lviv and Volyn oblasts. and the border regions of Poland, Zakarpattia region with Slovakia and Hungary, Chernivtsi with Romania.

Another possibility is the introduction of effective interstate labour migration agreements with countries that are in high demand among compatriots. The mechanism of action of the international employment

¹⁴ EURES – The European job mobility portal – European Commission. The official site. -<<https://ec.europa.eu/eures/public/en/homepage>>.

agreements is shown on the Figure 3. These may be agreements with the Republic of Poland, the Czech Republic, Slovakia, Germany, and the Baltic States.

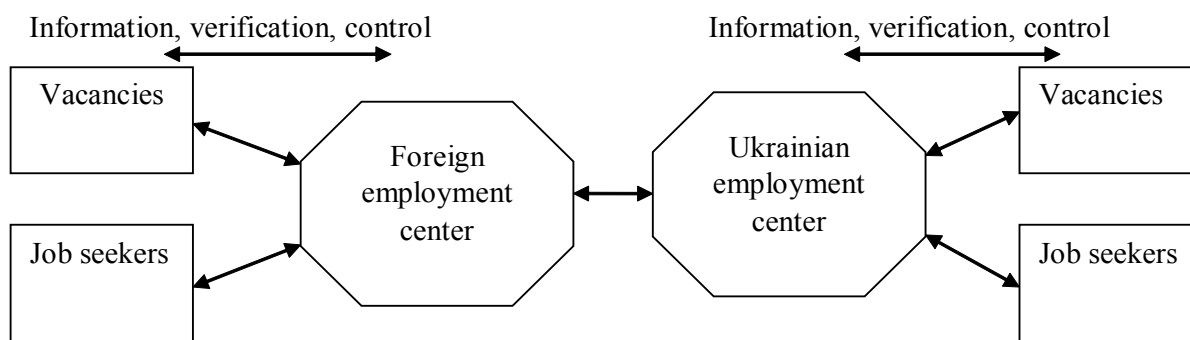


Figure 3. The mechanism of action of the international employment agreement
Source: compiled by the authors.

These agreements such as EURES are based on mutual benefit and trust on both sides. Exchange of information on vacancies and applicants is only through the mediation of state structures, analogues of the employment service. Only job offers are included in the job database, which is not possible or at least very difficult to employ from the local population. It reduces social pressure on migrants and the selection process by the local employment service makes it possible to check in detail the employment conditions of the enterprise.

Such agreements existed and operated during the times of active economic transformation between Poland and Germany, in particular, until the full integration of the former into the European Community. Such an agreement exists today between Ukraine and Israel, but because of its peculiarity and complexity, it is not in demand. On the other hand, it is an example of providing legal opportunities for temporary employment of Ukrainians abroad and participation in this process of employment services.

Having a regulated and transparent exchange of jobs information between countries with the largest labour force movement will reduce the role of unscrupulous mediators, and thus the risks of losing job seekers will ensure adequate accounting of labour migrants and, with it, legal protection reduce government spending on social benefits and subsidies for the officially employed part of the population, open up opportunities for re-emigration in some cases, etc. (see Figure 4).

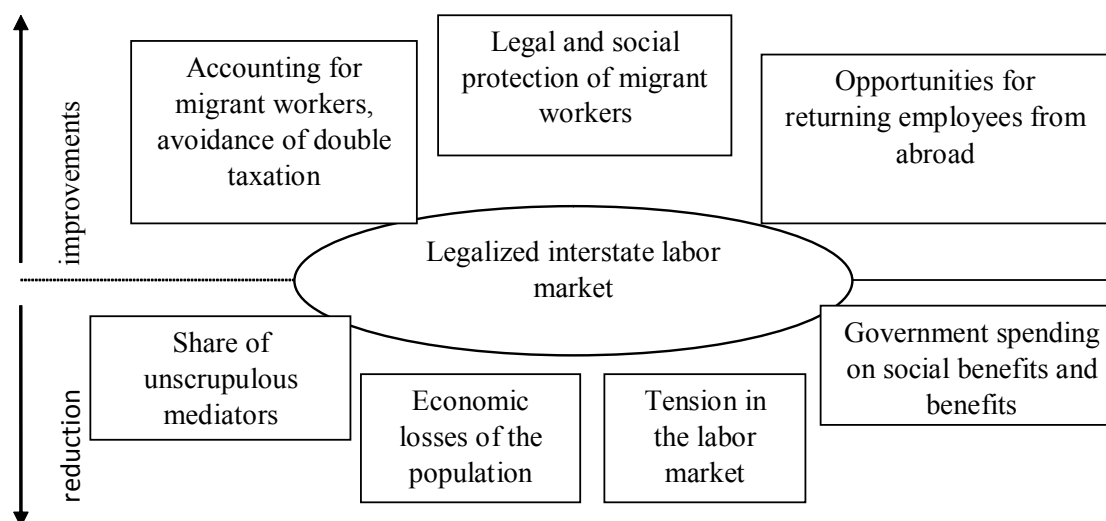


Figure 4. Advantages of a legalized interstate labour market.
Source: compiled by the authors.

In countries that have joined the pan-European labour market, demand for labour has increased sharply and these trends are steadily continuing. At the same time, there is a constant increase in the wages of workers and, accordingly, the incomes of the population. It should be added that the average wage in Eastern Europe is often several times higher than the minimum wage set by the state. The trends analyzed will also contribute to its further growth and approximation to the Central European indicators, when labour migration becomes obsolete and there are incentives for remigration, that is, the return of workers to the country of origin, which was clearly reflected in the labour market of the Republic of Ireland.

Studies from the European Center for the Development of Vocational Training (CEDEFOP) and other industry studies predict a significant increase in demand for highly qualified professionals and professions in need in the united Europe (the polarization of professions). Given the disappearance of certain professions through automation, robotics, and artificial intelligence development, several million new jobs are expected to open in Europe by 2020, most of which are high-demand. Given the irreversibility of the European integration process, this can be another challenge for the national economy, and it is likely to happen.

Along with the development of automation, digitization and the use of artificial intelligence, there will also be a number of professions that will gradually disappear. These are primarily low-skilled or time-consuming occupations that require physical activity or attention. These include: drivers, waiters, bartenders, translators, accountants, bank officers, lawyers, doctors in certain areas. Very often, such positions are filled by migrant workers. Thus, in the coming decades, the process of losing such people, including from Ukraine, places of work abroad, and returning to their homeland is possible. Low-skilled workers will return to their countries of origin and, at the same time, dynamic developed labour markets will wash out highly skilled technicians, the need for which will only grow. This is another threat that we need to think about today.

Decisive for career success will be: creativity, flexibility, cross-functionality, critical thinking, continuing lifelong learning, emotional and social intelligence, communication, people management skills.

However, it should be considered that under the influence of innovation and environmental change, new professions will emerge on the planet. Professions of the future, such as: city-farmer, smart city designer, smart homes engineer, designers (interface, fashion, emotions, virtual worlds), geneticist, specialist of biotechnology, bioinformatics, ecologist, specialist on solar energy (alternative sources), robot designer, 3D printing engineer, but also teacher, mentor, coach, advisor, consultant, HR.

4. The links between the labour mobility and diffusion of eco-innovations under the cross-border cooperation

The specific features of the relationships between the eco-innovative activity and cross-border labour mobility include, first and foremost, a shared interstate border and shared use of natural resources and, accordingly, shared solution of environmental security issues, greater opportunities for investment in jobs related to eco-innovation activities, implementation of eco-innovation projects by businesses (see Figure 5).

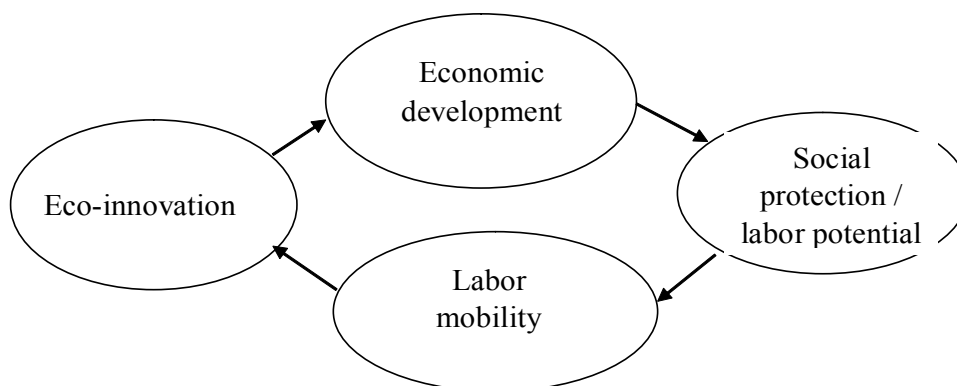


Figure 5. The links between economic development, labour mobility and diffusion of eco-innovations
Source: Own elaboration based on the study

We should also note shared problems that arise from the activities of the population and economic activity of businesses, as well as significantly higher load on infrastructure (roads, communications, services, roadside infrastructure).

Implementation of diffusion of eco-innovations depends heavily on the performance of cross-border enterprises, which is often closely connected with their eco-innovation and R&D activities. Therefore, businesses need more high-skilled workers for the implementation of eco-innovative projects, which are expensive, long-term and knowledge-intensive. Favorable innovation climate of the region is formed with the help of actions of state bodies at a local and regional level within the framework of national labour and innovation policies. Such activities are aimed at supporting creation of jobs in industries that use introduction of eco-innovative technologies, development of science, clustering of technological processes and networks, and transfer of knowledge. Even though different ways of cooperation on labour markets have been found within cross-border entities, their analysis shows that, at the present stage, the development of innovative and technological potential of labour resources is a common direction.

Scientists have found the following environmental problems of the cross-border regions¹⁵:

- compensation for environmental and economic damage in the cross-border area, caused by the activities of any industry;
- joint disposal of any waste produced by industries that are not located in cross-border territories but may cause damage to such territories;
- joint development of cross-border environmental infrastructure.

According to the definition of the European Commission¹⁶, the system of indicators for the determination of innovation potential as the basis for the formation of innovation clusters includes the following groups of indicators:

- R&D costs;
- number and quality of human capital in the field of R&D;
- inventing and patenting activities;
- investment resources for innovation activities.

In order to determine eco-innovation potential of the region and to evaluate the relationship between cross-border labour mobility and diffusion of eco-innovations, we suggest adding a number of indicators that are related to different levels of implementation: on the part of employees, enterprises, and policy makers.

For enterprises:

- *eco-innovation and environmental protection expenses;*
- *sources of financing for eco-innovation activities;*
- *number of eco-innovation projects implemented in the region;*
- *activity of enterprises, related to the implementation of eco-innovative technologies, depending on the size of enterprises;*
- *the cost of training employees in industries related to eco-innovation activities.*

Based on the data obtained from the interview with potential cross-border migrants, when implementing eco-innovative projects, enterprises must evaluate employees' willingness to:

- undergo vocational training or retraining courses,
- change their line of work,
- start their own business,
- move to work in another region.

According to the expert evaluation of the United Nations Environmental Programme (UNEP)¹⁷, it can be assumed that in the case of high level of diffusion of eco-innovations the cross-border labour markets will face at least four key changes:

- 1) additional jobs will be created – as in the manufacturing of pollution-control devices added to existing production equipment;
- 2) some employment will be substituted – as in shifting from fossil fuels to renewables, or from truck manufacturing to rail car manufacturing, or from landfilling and waste incineration to recycling;
- 3) certain jobs may be eliminated without direct replacement – as when packaging materials are discouraged or banned and their production is discontinued;

¹⁵ Paranyak, R., Voytovych, N. (2013) The Strategy of Development of Ecologic Policy on the Regional Level // *Scientific Bulletin of SGNVMBL*, Volume 15, №2, pp. 273-280.

¹⁶ Economic databases and indicators. – <http://ec.europa.eu/economy_finance/db_indicators/index_en.htm>.

¹⁷ Official site of United Nations Environmental Programme (UNEP). – <https://www.ilo.org/wcmsp5/groups/public/—ed_emp/—emp_ent/documents/publication/wcms_158727.pdf>.

4) many existing jobs (especially such as plumbers, electricians, metal workers, and construction workers) will simply be transformed and redefined as day-to-day skill sets, work methods, and profiles are greened.

In general, all these changes will be painfully perceived both businesses and employees, so as the main factors that inhibit the diffusion of eco-innovations we can define the lack of experience and the limited knowledge about economic benefits obtained as a result of eco-innovation.

The additional list of major barriers to diffusion of eco-innovations that have been identified in our previous studies¹⁸ also must be taken into account. These include the following: the lack of funds within the enterprises and the lack external financing, high risk level of investments in eco-innovations, uncertain demand from the market, uncertain return from investment, unhelpful regulations, lack of knowledge and experience. It should be added that the corruption of public officials has very restricting impact on eco-innovative activities.

According to the analysis of data, in 2010–2016, eco-innovation projects in Ukraine were mainly financed from enterprises' own funds – 85%, 0.7% – at the expense of state and local budgets, 0.8% – at the expense of loans, and 1.3% – at the expense of domestic and foreign investments¹⁹. The proportion is the same in case of eco-innovative projects financed by Ukraine within the framework of cross-border cooperation. Moreover, the necessary amount of funds was not even provided in the state budget for the implementation of eco-innovative projects determined within the framework of the State Program for the Development of Cross-Border Cooperation for 2016–2020²⁰. Sources of funding for cross-border cooperation projects mainly include resources from local budgets and international technical assistance, in particular programs of cross-border cooperation with the EU. Such low levels of R&D expenses of regions that participate in cross-border cooperation are indicative of the frequent under-financing of the eco-innovation field, and, consequently, of a slowdown in the eco-innovation development of the cross-border region as a whole and the greening of the cross-border labour market in particular.

In addition to the limited amount of funding, the most pressing issues of eco-innovation development of cross-border cooperation are as follows:

- insufficient pace of the implementation of eco-innovation projects in the border regions of Ukraine and underdevelopment of tools for the support of eco-innovation activities;
- legislative and institutional constraints on the development of SMEs in border regions and, thus, limited opportunities for the implementation of eco-innovation projects, including those related to cross-border labour mobility;
- inconsistency and/or lack of eco-innovation and labour market policies which would be common for all the neighboring countries;
- the lack of or insufficient development of border environmental infrastructure;
- declarative nature of the common priorities of interstate cooperation; hostilities in the east of Ukraine, which made it impossible to implement a number of cross-border projects.

It should be emphasized that in almost all strategic documents on the development of cross-border cooperation (strategies, programs, plans, etc.) with all neighboring countries, priority goals presuppose increase in eco-innovation and increase in competitiveness of the cross-border region on the basis of such eco-innovation, improvement of environmental protection, provision of adequate social conditions in the labour market, etc. Nevertheless, implementation of the relevant goals is only declarative in nature, and implementation of projects is hampered by a number of factors, including inconsistency and imperfection of legislation of both parties, organizational, administrative, and bureaucratic procedures, the lack of interest of participants, and the lack of understanding of the opportunities created by cross-border cooperation. A high level of corruption is a particular obstacle, especially in case of Ukraine.

¹⁸ Hrabynskiy, I., Horin, N., Ukrayinets, L. (2017) Barriers and Drivers to Eco-innovation: Comparative Analysis of Germany, Poland and Ukraine. // *Economic and Managerial Spectrum*, Volume XI, Issue 1, pp. 13–24.

¹⁹ Scientific and Innovative Activity of Ukraine (2016), Statistical Collection. State Statistics Service of Ukraine, Kyiv, 257 p.

²⁰ State Program of the Development of Cross-Border Cooperation of Ukraine on 2016-2020, from 23th of August 2016, No. 554. – <<http://www.kmu.gov.ua/control/uk/cardnpd?docid=249264044>>.

Conclusions

The results of the study permit to do some conclusions.

Ukraine is characterized by a high level of labour migration and a low level of eco-innovative activities, and nowadays it is facing to find practical solutions to urgent problems of the labour market, eco-innovative development of regions, cross-border territories, and the country as a whole.

The results of the study showed a high level of territorial mobility of the workers, in particular their readiness for external migration. In particular, half of the unemployed are potential migrants, and about one in four are “hard” migrants. The labour market of the EU members is the main directions for labour mobility from Ukraine. In these countries demand for labour has increased sharply. At the same time, there is a constant increase in the wages of workers and, accordingly, the incomes of the population. We can see a significant increase in demand for highly qualified professionals and professions in need in the united Europe (the polarization of professions), and the disappearance of certain professions through automation, robotics, and artificial intelligence development and ecologization.

Eco-innovation activity is essential to respond to major current and future challenges of modern world society. Despite of its considerable importance the eco-innovation does not diffuse easily and quickly in any economy. Many factors (barriers and/or absence of drivers) contribute to this. The main obstacles are: inconsistency and imperfection of legislation of both cross-border regions, organizational, administrative, and bureaucratic procedures, the lack of interest of participants, and the lack of understanding of the opportunities created by cross-border cooperation, a high level of corruption.

The directions of influence of cross-border labour mobility on the eco-innovative development are the following:

- 1) Migrant workers bring knowledge of eco-innovative technologies to the host countries;
- 2) Returning to their home countries, they bring experience in implementing of eco-innovation projects;
- 3) The innovative experience gained makes the employees more competitive in the labour market;
- 4) The innovative businesses are promptly staffed for their projects through simplified cross-border labour mobility;
- 5) Simplified labour mobility reduces the pressure on the social security sector;
- 6) Eco-innovations lead to the economic development and reduces the pressure on the social security sector.

REFERENCES

1. **Bottazzi, P.** (2019) Work and Social-Ecological Transitions: A Critical Review of Five Contrasting Approaches. // *Sustainability*, Volume 11, Number 14, pp. 3852–3860.
2. **Díaz-García, C., González-Moreno, A., Sáez-Martínez, F. J.** (2015) Eco-innovation: insights from a literature review. // *Innovation: Organization and Management*, Vol. 17, Issue 1.
3. Economic databases and indicators. – <http://ec.europa.eu/economy_finance/db_indicators/index_en.htm>.
4. **Elliot K. A., Freeman, R. B.** (2003) Can Labor Standards Improve under Globalization? // Peterson Institute Press: All Books, Peterson Institute for International Economics, Number 338.
5. EURES – The European job mobility portal – European Commission. The official site. – <<https://ec.europa.eu/eures/public/en/homepage>>.
6. Greening Jobs and Skills, OECD. – <<https://www.oecd.org/greengrowth/greening-jobs-skills/greeningjobsandskills.htm>>.
7. **Grishnova, O. A., Risnyy, O. P.** (2017) Integration of the Ukrainian Labor Market with the European one: Threats and Prospects (an assessment on the example of the countries of Eastern Europe). // *Demography and the Social Economy*, No. 3 (31), pp. 162–173.
8. **Heinz, F. F., Ward-Warmedinger, M.** (2006) Crossborder labour mobility within an enlarged EU, ECB Occasional Paper, No. 52, European Central Bank, Frankfurt a. M., 39 p.
9. **Horbach, J., Rammer, C., Rennings, K.** (2011) Determinants of eco-innovations by type of environmental impact – The role of regulatory push/pull, technology push and market pull. // *Ecological Economics*, No. 78, pp. 112–122.
10. **Hrabynskiy I., Horin, N., Ukrayinets, L.** (2017) Barriers and Drivers to Eco-innovation: Comparative Analysis of Germany, Poland and Ukraine. // *Economic and Managerial Spectrum*, Volume XI, Issue 1, pp. 13–24.

11. **Hrabynskiy, I., Horin, N., Ukrayinets, L.** (2017) Logit and Probit Analysis of Export Behaviour and Eco-Innovation Activity of Enterprises under Globalization: Evidence from Ukraine. // *Globalization and Its Socio-economic Consequences*, Volume 2, pp. 709–716.
12. **Karakaya, E., Hidalgo, A., Nuur, C.** (2014) Diffusion of eco-innovations: A review. // *Renueable and Sustainable Energy Reviews*, Volume 33, May, pp. 392–399.
13. **Libanova, E.M.** (2012) Social problems of modernization of the Ukrainian economy. // *Demography and the social economy*, No.1, pp. 5-22.
14. Official site of United Nations Environmental Programme (UNEP). – <https://www.ilo.org/wcmsp5/groups/public/—ed_emp/—emp_ent/documents/publication/wcms_158727.pdf>.
15. **Paranyak, R., Voytovych, N.** (2013) The Strategy of Development of Ecologic Policy on the Regional Lev
- Rennings, K.** (2000) Redefining innovation – Eco-innovation research and the contribution from ecological economics. // *Ecological Economics*, Volume 32, pp. 319–322.
17. **Ryndzak, I., Risnyy, O.** (2018) Monitoring of mobility of unemployed population in the system of regulation of regional labor markets. // *Scientific Bulletin of the International Humanities University. Series: Economics and Management*, No. 29.
18. Scientific and Innovative Activity of Ukraine (2016), Statistical Collection. State Statistics Service of Ukraine, Kyiv, 257 p.
19. State Program of the Development of Cross-Border Cooperation of Ukraine on 2016-2020, from 23th of August 2016, No. 554. – <<http://www.kmu.gov.ua/control/uk/cardnpd?docid=249264044>>.
20. **Stiglitz, J. E.** (2017) The overselling of globalization. // *Business Economics*, July, Volume 52, Issue 3, pp 129–137.
21. **Zimmermann, K. F.** (2004) European Labour Mobility: Challenges and Potentials. // *IZA Discussion Paper*, No. 1410, November, 35 p.