Podlaskie Obserwatorium Rynku Pracy i Prognoz Gospodarczych

Bundesagentur für Arbeit

REGIONAL LABOUR OFFICE IN BIAŁYSTOK

MODEL FOR THE MONITORING OF YOUNG PEOPLE'S SITUATION IN THE LABOUR MARKET

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Białystok 2014

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Author:
Edyta Dąbrowska

Statistical Analysis
Britta Lüdeke

Editors:
Katarzyna Kozakowska
Marzanna Wasilewska

Expert consulting:
Dorota Iwanowska-Klekotko: subsection 2.1
Silke Wojcik: section 4

Translation:
Anna Kraśko-Abusaymah

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Białystok, ul. Zwycięstwa 10
tel. 85 653-78-04
e-mail: biuro@partnerpoligrafia.pl

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SPIS TREŚCI

1. Introduction

Youth unemployment seems to grow faster and be more difficult to control than among older and more experienced workers. The evidence of this is the steadily deteriorating situation of this group of people in the labour market, which is also the reason for the existence in political and media discourse topics referring to analyze the reasons for this state of affairs. Improving the situation of young people in the labour market is a priority of the created policies at regional, national and transnational levels. The available sources of information about the situation of young people in the labour market lead to the conclusion that the analysis in this scope are comparative in nature, based on comparison of available statistical data. The carried assessment of the situation of young people is based on subjective, expert assessments of indicators characterizing youth unemployment and employment levels among this group of population. At the same time, the conducted analysis include the process of inference about the factors affecting the value of indicators characterizing unemployment and employment among young people.

In this publication is presented in another method of assessments of the situation of youth in the labour market and the factors determining this situation - **a model to monitor the situation of youth in the labour market**, using expert and statistical approach. The works on the Model was initiated and financed during the first period of their implementation (2011-2012) within the project of Labour Market and Economic Forecasting Observatory of Podlasie (PORPiPG)[1] implemented by the Regional Labour Office in Białystok and other projects co-financed by the European Union under the European Social Fund, as well as the statutory funds of Regional Labour Office in Gdańsk, Kraków, Poznań, Rzeszów, Szczecin and Warsaw. In the second period of work on the model – it was also financed from additional funding coming from transnational component in the project PORPiPG, resources of Bundesagentur für Arbeit Regionaldirektion Berlin-Brandenburg and resources at the disposal of the Regional Labour Office in Łódź.

[1] Labour Market and Economic Forecasting Observatory of Podlasie – project implemented under Priority VIII Regional human resources, Measure 8.1 Development of staff and enterprises in the region, the Sub-measure 8.1.4 Predicting the economic changes of the Operational Programme Human Capital.

The work on the structure of the model was initiated by the partnership Declaration, signed in April 2011 by six Polish regional labour offices, which representatives became members of the working group:

a) Regional Labour Office in Białystok (Labour Market and Economic Forecasting Observatory of Podlasie) – working group's leader,
b) Regional Labour Office in Gdańsk,
c) Regional Labour Office in Kraków (Labour Market and Education Observatory of Małopolska[2]),
d) Regional Labour Office in Poznań (Labour Market Observatory of Wielkopolska[3]),
e) Regional Labour Office in Rzeszów (Labour Market Observatory of Podkarpackie [4]),
f) Labour Market Observatory of Szczecin,
g) Labour Market Observatory of Warszawa (Departament of Labour Market Observatory of Mazowieckie[5]).

The activities of the working group obtained the mentoring of initiators to work on developing a model to monitor the situation of young people in the labour market – the members of the European Network on Regional Labour Market Monitoring (ENRLMM[6]), whose experience sig-

[2] Labour Market and Education Observatory of Małopolska – a system project implemented under Priority VI Labour market open to all, Measure 6.1 Improving access to employment and supporting economic activity in the region, the Sub-measure 6.1.2 Support for provincial and district labour offices in the implementation of tasks for the professional activation of the unemployed in the region.

[3] Labour Market Observatory of Wielkopolska - a system project implemented under Priority VI Labour market open to all, Measure 6.1 Improving access to employment and supporting economic activity in the region, the Sub-measure 6.1.2 Support provincial and district labour offices in the implementation of tasks for the activation of the unemployed in region.

[4] Labour Market Observatory of Podkarpackie –project implemented under Priority VIII Regional human resources, Measure 8.1 Development of staff and enterprises in the region, the Sub-measure 8.1.4 Predicting the economic changes of the Operational Programme Human Capital.

[5] Labour market observatories operating in some provincial labour offices - the members of the working group are not permanent organizational units of those offices (except the Department of Labour Market Observatory of Mazowieckie).
They function as research projects co-funded by the European Union under the European Social Fund. In these offices, in which similar projects do not operate, the research projects for regional labour markets are carried out by relevant statutory units financed like the whole office from the national public funds.

[6] The network brings together institutes, organizations and companies from 26 European countries, which aim is to improve the monitoring systems of regional labuor markets. In organizational and substantive scope the supervisor is Institut für Wirtschaft, Arbeit und Kultur

nificantly contributed to focusing the work of the Group and achieving its positive effects.

The aim of the work on the model became the development of a matrix for monitoring the situation of young people in the labour market in Polish reality, which could then be developed and implemented at the level of other countries. Therefore, in the course of work on the model for the initiative was obtained a transnational partner - Bundesagentur für Arbeit Regionaldirektion Berlin-Brandenburg, with which in January 2013 was signed the transnational partnership agreement. From the moment of its signature the work on the model was continued in two ways. On the one hand it was developed the so called Polish model. On the other hand, started the work on the adaptation of Polish solutions to German conditions.

This report, presenting the results of work at both the national and transnational level, raises several important issues. The first is the origin of the formation of the modeling idea in the area of monitoring the situation of young people in the labour market. The second important issue of the report is to present the results of the Polish working group. The model developed by it, created on the basis of Polish reality, is the matrix for the work aimed at the development of the model at the transnational level. The results of this work are also the subject of interest of this publication.

(IWAK) at the University of Frankfurt am Main (the Institute for Economics, Labour and Culture in Frankfurt)

2. Origin of the work on the development of the model for monitoring the situation of young people in the labour market

In general, initiatives are born on land emerging needs, as it happened in the case of modeling the initiative in the scope of monitoring the situation of young people in the labour market. The deteriorating situation of young people in the labour market aroused particular interest of the European Commission in searching for solutions to change this state of affairs. However, in this case, the monitoring activities were limited to the level of EU countries. In the working document of Commission services developed in 2011 was proposed a set of indicators to monitor the situation of young people, but only at the level of Member States.[7]

The effectiveness of measures applied to young people, however, is strongly correlated with the determinants occurring at the regional level. Extremely strong regional differences, even within individual Member States tend to look for adequate solutions to the circumstances at the regional level. The gap in access to information on the situation of young people in the regional labour markets was noticed by *the European Network on Regional Labour Market Monitoring*. The network by developing a set of key and context indicators initiated work on creating a model to monitor the situation of young people in the labour market at this level of data aggregation. The work on the development of a model and proposing concrete solutions has been entrusted to Polish labour market observatories.

2.1. Issues relating to young people in EU policy

In 2013 in the EU (EU 27) 22.9% of economically active people aged under 25 were unemployed. Considering the fact that before the crisis, the unemployment rate among this category of persons was 15.7% (in 2007), an increase recorded in the next years should be considered significant[8]. In the political discourse of the leaders of the Member States was indicated a fear of "lost generation spectrum" and the loss of pace in the global eco-

[7] SEC(2011) 401 final

[8] Eurostat, http://appsso.eurostat.ec.europa.eu/

nomic race. Youth policy and the related education policy have become some of the most important policies.

Despite the growing problems of youth entering the labour market and in spite of the growing importance of youth policy, it hasn't become a common policy of the European Union. Each country preserves in this area of work its own individuality. However, common positions on specific issues, as a result of the findings at the European Parliament or the European Council, result then in undertaking commitments to achieve stated objectives at the level of Member States. The analysis of approach to the problems of young people in the historical context shows increasing activity of the European institutions in taking actions to create the pro-youth policies. In the first phase of taken actions they concerned the issues related to education, but they not immediately were taken at the Community level.

The European Communities at the time of their creation (1951, 1957) only to small extent have taken actions in the field of education, leaving it mainly to the competence of the Member States. In the Treaty of Paris and Treaties of Rome educational issues were raised only indirectly. Only in the field of vocational training, strongly associated with the functioning of the European internal market, have been taken the measures to create a system of recognition of qualifications (so called *Europass*). The European Economic Community was not and currently is not the "European educational community." However, due to the feedback that occurs between the activities undertaken in the social, economic and political field the undertaken activities in the scope of education have become essential.

Therefore, in the recent years the EU has undertaken a number of initiatives in this field, although a breakthrough in thinking about the European education should be sought in the mid-70s and then at the beginning of the 90s. It should be emphasized again that, although education is a field still remaining in the exclusive competence of governments of the Member States, in the Treaty on the European Union - the Treaty of Maastricht in 1992 were indicated the key actions in the field of education, not only vocational. The Maastricht Treaty is a treaty basis for educational cooperation. In this document was emphasized that the purpose of the Union is:

- promoting the mobility of students and teachers,
- development of cooperation between schools and universities,
- encouragement to learn foreign languages,
- recognition of academic qualifications, skills and competencies,

– development of open learning and distance education[9]

In the mid-90s were created many European cooperation programs in the field of education financed by the EU, and the following should be named:

– Socrates (with programs Comenius, Erasmus, Grundtvig, Lingua, Minerva, Arion, Naric, Eurydice) –provided for universities, schools, teachers, training and improvement institutions;
– Leonardo da Vinci –supporting the activities of the Union in the field of vocational education and training;
– Youth - designed for young learners.[10]

The last of these programs - **"Youth"**, is a result of the development of activities aimed at young, dating back to the 80s of the last century and the establishment of programs supporting financially the youth cooperation - the program *Youth for Europe* and European *Voluntary Service*. They made easier the youth exchanges and increased the general level of awareness on the issue of European youth. The *Youth* Programme, scheduled for 2000-2006, by the decision of the EU Council and Parliament no 1031/2000, defined as purpose to increase the mobility of people aged 15-25 years and to enable them to acquire additional skills outside the education system, among others through the participation of youth in the international exchange, work as volunteers in other countries[11].

However, the symbolic beginning of creation and then development of a separate youth policy is considered to be published in early 2001 **European Commission White Paper - "New Impulses for European Youth"**[12]. It was found in it that the previous resolutions and statements on specific issues related to youth often do not go beyond the sphere of good intentions and that the Member States, and the European institutions had inadequate understanding of political strategy and, consequently, the types of actions that can be taken to support young people. The book was the first comprehensive study concerning the youth in the European Union. As priorities of youth policy were accepted first of all: youth participation in public life, information, voluntary activities, better understanding of youth,

[9] http://www.lifelong-learning.pl/unia/1.html.
[10] There.
[11] Source: http://stosunki-miedzynarodowe.pl/slownik/63-p/647-program-mlodziez-dla-europy, E. Małuszyńska, B. Gruchmann, *Kompendium wiedzy o Unii Europejskiej*, Warsaw 2005.
[12] Commission of the European Communities (COM 2001).

as well as **education and continuing education**, mobility, employment, social integration, measures against racism and xenophobia.

The striving to achieve the above objectives meant the necessity to intensify common EU action in the field of education. Even before the acceptance of the White Paper of the European Commission - *"New impulses for European Youth"*, in March 2000 at the meeting of the European Council in Lisbon began the process leading to the acceptance of common educational goals for Europe. They were formulated by Lisbon Strategy being Europe's response to globalization, the development of knowledge-based economy and increasing economic competition from other regions of the world. It determined the time horizon to 2010, in which as a strategic goal it was adopted *the achievement by the European economy the state of the most competitive and dynamic economy in the world based on knowledge, capable of sustainable economic growth with more and better jobs and ensuring greater social cohesion.*

In connection with the development based on knowledge, the Lisbon Strategy has formulated specific objectives for the development of education:

- education in Europe will reach the highest level and will be considered as a model for the world in respect of quality and adequacy,
- education systems in Europe will be compatible enough that they will enable citizens free mobility and the possibility to use different educational training offers,
- qualifications, knowledge and skills gained in each EU country will be recognized in all EU countries and will enable in these countries taking work and further education,
- all Europeans of all ages will have the opportunity to learn throughout life,
- Europe, for mutual benefit, will be open to cooperate with all regions and should become the place most frequently chosen by students, university teachers and scientists from other world regions[13].

The objectives set out in the *Lisbon Strategy* were very ambitious. Generally formulated, they found their particular interpretation in the form of 3 strategic and 13 operational objectives, which were adopted in Barcelona in 2002, in a key document for the European education ***"Educa-***

[13] http://www.lifelong-learning.pl/unia/1.html.

tion and training in Europe: diverse systems, shared goals for 2010. The work programme on the future objectives of education and training systems" **As** strategic objectives in this document were accepted:

- improving the quality and efficiency of education systems in the EU with respect to new tasks of the knowledge society, changing methods and content of teaching and learning,
- facilitation of universal access to education systems in accordance with the guiding principle of continuing education, action to increase opportunities to gain and maintain employment and professional development, as well as civic activity, equal opportunities and social cohesion,
- opening up education systems to wider environment and the world due to the necessity of better adaptation of education to professional work and society, and meeting the challenges of globalization[14].

The analyzed document **has defined educational policy as a part of European employment policy**. However, *the Lisbon Strategy* and the provisions of Barcelona increased the role and expanded powers of the EU in educational policy on the basis of coordination of activities at different levels, by the Member States, regional authorities, social partners and the whole of societies. As part of the implementation of the "Lisbon process" was created the term "European area of knowledge", including "European area of research and innovation" and "European area of education and training" (it consists of *the European Higher Education Area* and *the European area of continuing education*). Pan-European cooperation in the scope of higher education is carried out in the so-called Bologna process. On the other hand the "Barcelona" program committed the member states and the candidate countries to make efforts with the support of the European Commission to increase the level of education in the member countries. For the purpose of measuring the level of quality of education was accepted a range of important objectives and ratios (indicators). This need resulted from a critical assessment of situation in *education at that time recognized in the document, and expressed inter alia in words: "Despite the significant changes that have taken place, the education systems are still in many respects focused mainly on the institutional functioning of educational institutions. More attention is paid to teaching than learning, we fo-*

[14] The European Commission General Directorate for Education and Culture, Education in Europe: the different education and training systems - common goals for 2010, Doc. 6905/04.

cus more on the curriculum than on students and still an abstract academic knowledge is more valued than the adaptation of training programs to the needs of customers. Therefore, there is the need to extend cooperation with many different institutions and organizations from the business sector, research institutions, social partners and the wider understood society. This is also required by the conversion of educational institutions into the learning organizations. The "Barcelona" program contained a specific guidance for the education systems of the Member States. „The convergence of education" has become a basic educational term in the modern Europe, meaning however, not the identity of education systems in the Member States, but the convergence at the level of strategic objectives, increasing the chances of graduates of all Member States in the single European labour market and in becoming similar European education market. As a result of indicating educational goals and determining the indicators to be achieved, was created the framework, which should include the education systems of the Member States, individual schools, and which every teacher should cope with[15].

The most important forms of cooperation related to the implementation of the Barcelona program are joint reports of the European Commission and the Council concerning the implementation of the program, developed every 2 years, and the work in the working groups, among others in the permanent group for indicators. Both indicators and reference levels are the basis for cooperation, they have to be used, among others, to identify actions that bring positive results as well as can be used for mutual exchange. The indicators are subject to change, therefore, the document assumes the development of new, which characterize the structure relating to the following areas of educational policy:

- improving of equal opportunities in education and training,
- the promotion of efficiency in education and training,
- realization of learning throughout life,
- development of key competencies among young people,
- modernization of school education,
- modernization of vocational education and training,
- modernization of higher education,
- increasing opportunities for employment.

[15] http://www.lifelong-learning.pl/unia/1.html.

By the Resolution of the 27th of June 2002 of the Council and the Representatives of the Governments of the Member States who have met within the Council was established **a framework for European cooperation in the youth field**, in which was made the provision for the use of **open method of coordination** and including the youth issues into other policy areas [16]. The Open Method of Coordination involves several stages of the decision making process. At the beginning the Member States shall submit their proposals related to a given area and after development and unification they are presented by the European Commission to the Council of the European Union to accept. The proposals adopted unanimously by the member states become common objectives of the European Union. The governments of the Member States become responsible for the manner and scope of these objectives and the submission to the European Commission the reports concerning the implemented activities every two years. Based on received reports the EU institutions make monitoring, comparison and evaluation of the implementation extent for the agreed objectives. An important element of the Open Method of Coordination are consultations - at national and EU level. Before sending the reports to the Commission, the governments of the Member States must consult their content with the youth. On the other hand the Commission may consult its report with a formal representative of young people in the EU - the European Youth Forum.[17]

In accordance with agreed procedures of the Open Method of Coordination were accepted and now are implemented the goals common for the EU. The resolutions of the Council of the European Union, accepted in November 2003 and November 2004, have defined 14 common objectives in four areas:

1) participation of young people in democratic life,
2) information for young people,
3) activities of young people in the form of volunteering,
4) better understanding and knowledge of youth.[18]

[16] Council Resolution of 27 June 2002 establishing a framework for European cooperation for Youth, Journal of Laws C 168 z 13.7.2002, p. 2.

[17] Office of the Committee for European Integration, *Youth Policy of the European Union,* 2009, p. 3.

[18] Council Resolution of 25 November 2003 on common objectives for participation and information of young people; Council Resolution of 15 November 2004 on common objectives concerning the activities of young people in the scope of volunteering; Council Resolution of

In March 2005 at the meeting of the European Council was approved **the European Pact for young people**, which is one of the instruments facilitating the realization of the Lisbon objectives concerning growth and employment. The main goal of the Pact was improving the level of education, trainings, increasing of mobility, vocational and social integration of young Europeans. In view of aging of the European population, the European Council recognized the need of young Europeans to benefit from the policies and measures constituting a fully integrated part of *the Lisbon Strategy*. The European Council therefore requested the Union and the Member States, each within their respective powers, in particular the European Employment Strategy and Social Integration Strategy, to accept inter alia important guidelines for action to increase the adaptation of education and participation of youth in the labour market. Among the actions requested in *the Pact* in the field of education, training and mobility were actions from the scope of employment, integration and social advancement, including:

- the application of specific monitoring policies for constant integration of young people into the labour market, in the context of mutual program for information exchange concerning the employment,
- the encouragement to increase youth employment,
- giving priority to improve the situation of young people in the most difficult situation pursuant to the national social integration policy,
- encouraging employers and entrepreneurs to greater social responsibility in the field of professional integration of young people,
- encouraging young people to entrepreneurship development and supporting young entrepreneurs.[19]

The Conclusions of the European Council of 22 and 23 March 2005[20], concerning the Lisbon Strategy Revival was called to place emphasis on knowledge, innovation and the optimal use of human capital to implement such key priorities as new jobs and economic growth. Further was stressed the need for better investment in universities, modernizing the governance of universities, as well as the need for partnerships between universities and industry. The conclusions were the result of a joint interim

15 November 2004 on common objectives for a greater understanding and knowledge of the problems of youth.

[19] Doc. 7619/1/05.

[20] Doc. 7619/1/05.

report 2004 of the Council and the Commission on the *"Education and Training 2010"*[21], specifying that the European higher education sector should strive for excellence and become a world quality reference so that it can compete with the best in the world. However, both documents have been taken into account in **the Resolution of the Council** and the Representatives of the Governments of the Member States meeting within the Council, on mobilizing the brainpower of Europe: **enabling higher education to make its full contribution to the Lisbon Strategy[22].** The resolution placed emphasis on improving the quality of higher education. It indicated that it remains the responsibility of the individual Member States, which can make decisions regarding the organization and resources in this field in accordance with national priorities, legislation and practice, but in the economy and society based on knowledge it should be seen in close conjunction with research and innovation.

The Council conclusions of 12 May 2009 on **a strategic framework for European cooperation in education and training (ET 2020)**[23] defined the scope of the strategic framework for European cooperation in relation to education and training by 2020. ET 2020 uses the achievements of the said work program *"Education and training 2010"* (ET 2010), which was accepted by the European Council in Barcelona in 2002 and as the first created a solid framework for the European cooperation in education and training, basing it on common objectives and setting itself as the main task helping to improve national education and training systems through complementary European tools, learning from each other and exchange of best practice through the open method of coordination. *ET 2020* for the main purpose of the scope of the framework set itself to support the Member States in further developing their education and training systems in order to provide better resources for all citizens to realize their potential for sustainable economic prosperity and thereby opportunities for employment.

In 2009 was also adopted **the EU Youth Strategy** (approved by the Council Resolution of 27 November 2009 on a renewed framework for the European cooperation for the youth 2010-2018)[24]. This followed after issu-

[21] Doc. 6905/04.
[22] 2005/C 292/01
[23] Journal of Laws 119 of 28.5.2009
[24] The Council Resolution of 27 November 2009 on a renewed framework for European cooperation in the youth field (2010-2018), Journal of Laws C 311 of 19.12.2009.

ing the Commission's Announcement *"An EU Strategy for Youth - Investing and Empowering"*.[25]

The European cooperation for the youth in the years 2010-2018 was focused on the implementation of two interrelated **objectives:**

- creating larger and equal opportunities in education and labour market,
- promoting of civic activity, social inclusion and solidarity.

The renewed framework defined eight areas for cross-cutting initiatives to support young people:

- education and training,
- employment and entrepreneurship,
- health and good condition,
- engagement,
- volunteering,
- social inclusion,
- youth and the world,
- creativity and culture.

In the resolution was indicated that young people have a role to play in meeting the challenges and opportunities that frequently appear and will appear in the future for the European Union and its citizens in socio-economic, demographic, cultural, environmental and technological the areas. The achievement of the objectives of the European Lisbon Strategy, namely economic growth and employment depend- like promoting personal fulfillment, social cohesion and active citizenship, on helping young people in social and occupational integration.

In connection with the implementation of the Strategy the Council of Europe called on the Commission to establish a working group to undertake discussions on important policy areas, existing data concerning the situation of young and identify possible needs to develop indicators in areas where they do not exist. The indicators have been published in the Commission Staff Working Paper on March 25, 2011. From 8 activity areas of young people were selected 40 indicators for monitoring. The indicators are presented at the level of individual European countries by Eurostat

[25] An EU Strategy for Youth – Investing and Empowering, COM(2009) 200 final version, 27 April 2009

and updated once a year[26]. The document is fully complementary with the objectives of a new strategy for jobs and growth **"Europe 2020"**[27] and its flagship initiative "Youth on the Move " adopted on 26 March 2010 by the European Council, which refers to the more specific issues of youth participation and mobility, related to increasing level of education and increasing employment opportunities. In contrast to general guidance provided by the strategy "Europe 2020", the information acquired from the indicators may support more specific EU political processes directly or indirectly linked with young people. It identifies key indicators for the understanding of the overall situation of young people. The program "Mobile Youth" aims for the reduction of high unemployment currently observed among the young people, and for increasing the level of employment - in accordance with the EU-wide objective- to 75 per cent among the working age population (20-64 years).

The objective of the Strategy **"Europe 2020"** has become a greater coordination of economic policy with a focus on the most important areas requiring actions to stimulate Europe's potential in the sphere of sustainable growth and competitiveness.

Another initiative to support the implementation of the Strategy **"Europe 2020"** relating to the situation of youth was the program **"Youth on the move"** - a project for improving the quality and attractiveness of higher education by promoting the mobility of students and young professionals. The evidence of this project implementation should be greater availability of jobs in the Member States and trouble-free recognition of qualifications and experience, to help young people enter the labour market.

The overview of EU policies in relation to young people indicates the significant evolution in the approach to the problems of this social group. The original approach to the methods of support the organization focused on the use of different kinds of recommendations and demands has evolved into specific actions, targeting them for solution of specific problems, basing actions on the identified facts arising from a running monitoring system of indicators concerning the specific areas of youth activity. The Youth has become a priority group, considered as a potential, on which depends the future of Europe as the area which is economically

[26] SEC(2011) 401 final.
[27] KOM(2010) 193 final version, 2010/0115 (NLE).

developed, competitive and able to face the greatest challenges. At first relatively narrow support framework gave a way to coordinate activities at many different levels.

2.2. European Network on Regional Labour Market Monitoring (ENRLMM) and the idea of a regional model for monitoring the situation of young people in the labour market

In the development of Community policies, it is important to emphasize two aspects which are important with respect to monitoring the situation of young people in the labour market. The first is the development in the direction of drawing attention to many areas participating in the development of a final result, which is the integration of young people into the labour market. In 2001, **the European Commission White Paper - "New Impulses for European Youth"**[28], specifying the types of actions that can be taken to support the youth, has adopted the following youth policy priorities: the participation of young people in public life, information, voluntary activities, better understanding of youth, as well as education, continuing education, mobility, employment, social inclusion, measures against racism and xenophobia. Thereby it emphasized the importance of these areas of activity of young people as having a significant impact on their position in the social and professional life. In connection with the implementation of **the EU Youth Strategy**[29] objectives, the working group[30] established to undertake discussions on important policy areas, available data on the situation of young people, has already developed eight specific fields of activity of young people.

The works of the said group are also associated with the other signaled aspects, which are striving to base policies on the ascertained facts. An expression of this approach is the development by the group the set of 40 indicators in the areas mentioned above, aimed at the detailed monitoring of the situation of young people in various forms of its existence. In contrast with the general guidance provided so far by the strategic and

[28] Commission of the European Communities (COM 2001).

[29] Council Resolution of 27 November 2009 on a renewed framework for European cooperation in the youth (2010–2018), Journal of Laws C 311 of 19.12.2009.

[30] SEC(2011) 401 final.

program documents before the information resulting from the analysis of indicators it was defined a task to support the specific political processes of the EU, directly or indirectly associated with young people, and the task to facilitate the understanding of the overall situation of young people. The indicators and data collected in this scope are presented at the level of individual European countries by Eurostat and updated once a year[31].

However, due to observed on the basis of available statistical data strong interregional differentiation of the youth situation, even within the individual Member States, the creation of policies at the national level may not be sufficient. The effectiveness of policies is closely correlated with their adaptation to regional problems. The achievement of consistency in this area requires a knowledge concerning the situation of young people at the regional level.

The problem of access to information about the situation of young people at the regional level has been raised by *the European Network on Regional Labour Market Monitoring (ENRLMM)*[32]. The network as the first has developed a set of desirable and recommended indicators having main and context character, which could be used in monitoring the situation of young people in the labour market at regional level of data aggregation. The initiative required, however, to develop and to work on acquiring specific regional data within the specified indicators.

At subsequent meetings of the network members, taking place within the so-called *European Days and Annual Meetings* in Marseille (2010) and Luxembourg (2011) was developed the concept of the work on the model, which would enable the unification of monitoring the situation of young people in the Member States Network and making inter-regional comparisons. **A** fruitful in this respect was especially *the European Day 2011* in Luxembourg. During this annual event ENRLMM drew attention to several important issues:

- the need to unify the indicators for monitoring young people in the regional, national and European context,
- the necessity of analyzing the data concerning the situation of young people (15-29) in the European labour market resulting, among others, from the effects of crisis and its consequences in the form of

[31] SEC(2011) 401 final.

[32] The network brings together institutes, organizations and companies from 26 European countries, which aim is to improve the monitoring systems of regional labour markets.

deteriorating the situation of young people in the labour market in Europe, mainly in Spain, Lithuania, Slovakia, and Poland,
– the need to monitor such phenomena as forms of employment, quality of education, professional and spatial mobility of young people and the need to confront the demand and supply of jobs in the range of the problems of young people.

During the Luxembourg meeting was emphasized the specific nature of basic problems of young people, which often are associated with low levels of education (education level), and often lack of trained profession. The conclusions from the meeting stated that this is accompanied by a progressive increase in unemployment among people with higher education. The attention is paid to the fact that most of the observatories concentrated in *ENRLMM* have its own experiences in monitoring the youth. However, they show a different approach to the detailed observation and applied research methodologies.[33] The discussion on existing state of affairs led to the conclusion that conducted research requires unification. These meeting was full of declarations on cooperation aiming at building a unified monitoring of the situation of young people in the European labour market and its proposal was to work on a key model by Polish labour market observatories.

2.3. Working group activities and expert model to monitor the situation of young people in the labour market

The works on the model of monitoring the situation of young people in the labour market started on December 18, 2011 at the organizational meeting, which was held at the Regional Labour Office in Rzeszów. During the meeting was initiated the creation of working group responsible for development of the model, was determined the initial schedule of works and how they will be implemented. The Declaration on partnership to develop the model of monitoring the situation of young people in the labour market was signed by seven Regional Labour Offices, expressing willingness to participate in the working group, and was finalized in April

[33] Performed by ENRLMM in August 2011, on a sample of 347 of 520 observatories operating in Europe, the study found that 243 checked companies have experience in the use of indicators to monitor the youth.

2012. The Regional Labour Office in Bialystok undertook the Coordination of the working group.

The works on model were implemented in two ways. The conceptual works were undertaken in the form of workshop meetings organized at the regional labour offices – being the members of the working group. After each meeting, followed a period of own conceptual work, implemented by the members of the group representing each regional labour office.

The result of actions carried out by the working group was a so called **expert model of monitoring the situation of young people in the labour market**. Its characteristic feature was to base the assumptions on the concept of expert knowledge of the working group members and external experts - theoreticians and practitioners not included into the group.

During the work the group has selected six fields for monitoring of young people's situation within the labour market. The basic assumptions of the model included the statement of purpose, the level of data aggregation and analysis periods.

Table 1. The assumptions of the expert model for monitoring the situation of young people in the labour market

	Description:
Main purpose:	Providing information about the situation of young people in the labour market allowing to take steps to improve the situation of this group of people.
Level of monitoring:	Region
Period of analysis:	Year
Monitored group:	Young people aged 15-34
Fields of activity of young people covered by monitoring:	Demography Education Family and living conditions Social activity Unemployment Employment

The decision to adopt the annual monitoring periods resulted from the difficulties in access to statistical data at more frequent reporting units - quarterly periods. On the one hand the monitoring of age group of 15-34 resulted from the fact that in public statistic the primary statistical groups were age groups 15- 24 and 25- 34 years. Another reason was the fact of ex-

tended periods of education and maternity decisions taken later and later in life.

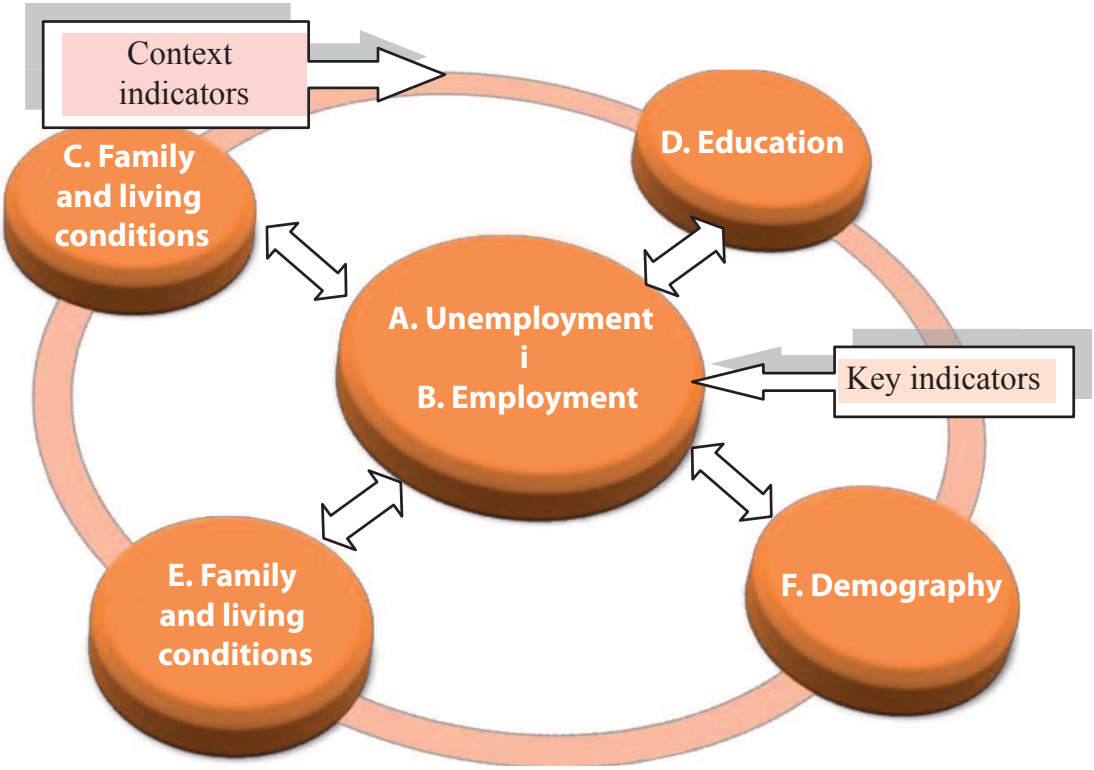
In the concept was made the division into key and context areas of analysis. **Key areas** are defined as areas directly showing the situation of young people in the labour market and they include:

- unemployment,
- employment.

The other four areas were considered as **context areas** – it was assumed that phenomena in context areas have influence on the values of metrics and indicators concerning the situation of young people to be measured in the field of employment and unemployment. Among the context areas were:

- demography,
- education,
- family and living conditions,
- social activity.

Figure 1 Scheme of the expert model for the monitoring of young people's situation within the labour market



For selected fields of analysis the responsibility was assigned to the representatives of particular units participating in the working groups. The following areas were assigned to the respective regional labour offices:

a) Regional Labour Office in Białystok – demography,
b) Regional Labour Office in Gdańsk – unemployment,
c) Regional Labour Office in Kraków – education,
d) Regional Labour Office in Poznań – employment,
e) Regional Labour Office in Rzeszów and Warszawa – family and living conditions,
f) Regional Labour Office in Szczecin– social activity.

Each group was given the task to define the research hypothesis and the methodology of research to be done to confirm or disprove it. Generally, Desk Research was assumed to be the basic research method of existing data derived from public statistic data. However, during the work was allowed the option to propose the concept of collecting specific data through the field research.

In April 2012 the group adopted a preliminary set of indicators for monitoring within the pre-determined fields. It included 65 indicators selected on the basis of available statistical data, periodic surveys done as a part of public statistics and periodic tests conducted within the research projects[34].

In order to ensure the proper procedures for the selection of diagnostic variables, a set of potential indicators was then evaluated by external experts. The internet questionnaire used for this purpose was developed by the Regional Labour Office in Szczecin[35].

During the concept meeting in June 2012, were summarized the results of the questionnaire survey. The results of the scoring granted to each of the indicators according to accepted evaluation criteria have become material for experts from the working group. Based on the scoring, and af-

[34] As scientific research "Social Diagnosis" implemented since 2001 in a two-yearly intervals, financed by the European Social Fund under the Human Capital Operational Programme, the National Bank of Polish, research grants of the Ministry of Science and Higher Education and sponsors.

[35] Totally 65 indicators were evaluated in respect of three criteria: **validity, reliability and availability**. After posting the questionnaire on the website, the working group members sent to well-known experts of labour market and researchers dealing with the youth problems, the questionnaire and asked to fill it. They received 43 completed questionnaires. Based on obtained scores all particular indicators were assigned to levels according to obtained evaluation.

ter the consultation with representatives of ENRLMM finally were adopted **30 measures and indicators**[36] for the analysis within the framework of six areas of young people's activity. The indicators used for the analysis in specific areas are presented in table 2.

Table 2. Areas and indicators adopted to monitor in the expert model of monitoring the situation of young people in the labour market

No	Field name	NAME OF INDICATOR English
		Key fields:
1.	**Unemployment**	***Share of unemployed persons aged 15-24 years and 25-34 years in the total unemployment (LFS)***
2.		***Share of unemployed persons aged 18-24 years and 25-34 years in the total unemployment (registered unemployment)***
3.		***Unemployment rate in %, persons aged 15-24 years and 25-34 years (LFS)***
4.		***Number of unemployed persons aged 18-24 years and 25-34 years (registered unemployment)***
5.		***Fluctuation of unemployment coefficient, persons aged 18-24 years (registered unemployment)***
6.		***Share of unemployed persons aged 18-24 years by educational level in unemployed persons aged 18-24 years (registered unemployment)***
7.		***Share of unemployed persons aged 18-24 years with no work seniority in unemployed persons aged 18-24 years (registered unemployment)***
8.		***Share of long - term unemployed persons aged 18-24 years and 25-34 years in unemployed persons aged 18-24 years and 25-34 years (registered unemployment)***
9.	**Employment**	***Activity rate of young people (15-34)***
10.		***Employment rate of young people***
11.		***School leavers starting work for the first time***
12.		***School leavers starting work for the first time by school type***
13.		***Average monthly gross wages and salaries***
14.		***Natural person aged 18-29 conducting economic activity***
15.		***Employment status of young people in the labor market***

[36] For all of the data suggested to analyze within a model was accepted a unified name, so called "indicators", it should be noted that the model included absolute and relative measures.

No	Field name	NAME OF INDICATOR English
		Context fields:
16.	**Demogrphy**	***Share of young people aged 15-34 in 1000 inhabitants (as of December 31)***
17.		***Number of people (total, female, male, urban area, rural area) in age: 15-34, 15-19, 20-24, 25-29, 30-34***
18.		***The age-specific fertility rate in age: 15-19, 20-24, 25-29, 30-34 (Fertility — live births per 1000 women at age specified)***
19.	**Education**	***Early leavers from education and training***
20.		***Upper secondary vocational students***
21.		***Graduates by field of education***
22.		***Vocational exam pass rate***
23.		***Participation of young people in education and training***
24.		***Youth by educational attainment***
25.	**Social activity**	***Social activity for young people - a synthetic indicator***
26.	**Family and living conditions**	***Household's available income***
27.		***At-risk-of-poverty rate (after social transfers)***
28.		***Users of social assistance***
29.		***Households provided with selected durables (Personal computer, Personal computer with access to the Internet, Printer, Passenger car, Mobile phone)***
30.		***Disabled persons***

The fields and indicators analyzed within their content were described by the group according to the uniform scheme presenting adopted hypotheses, research problem identifications and descriptions of indicators showing its definition and data resource for indicator, pursuant to the schedule presented in table 3 for the field of employment.

Table 3. Presentation scheme of fields and indicators adopted in the expert model of monitoring the situation of young people in the labour market based on the example of the key field : EMPLOYMENT

EMPLOYMENT	
Research hypothesis	
Young people show a lower than average economic activity.	
Problem identification	
From the social and economic points of view, young people (up to 34 years of age) constitute a social group whose labour market position is unstable. The employment conditions offered to them frequently do not meet their expectations, in financial or legal scope. The period of searching the employment tends to get longer, and the first contacts of this group with the labour market, increasingly frequently, are based on temporary jobs. The situation where there is no job makes young people to extend the period of their education and increasingly postpones the entry into the labour market. Better and better educated graduates are offered employment which is inadequate to their level of education and skills. The vision of "lost generation" should be related to the consequences which will be experienced by the entire society and economy during the coming years, as a result of loss of young people's potential. On the other hand, a deficit of practical skills is noticeable amongst the young people. A decrease in the number of young employees is becoming a problem in the context of demographic challenges.	
Name of the indicator	**Description of the indicator**
Occupational activity rate of young people	Percentage of economically active (employed and unemployed) young people (15-34 years) in the total number of young people (15-34 years). ***Source:*** Local Data Bank (LDB)
Young people's employment rate	Percentage of employed young people (by age category) in the total number of young people (by age category). ***Source:*** Local Data Bank (LDB)
School leavers taking up employment for the first time	School leavers taking up their first jobs as a percentage of the total population taking up employment for the first time (during the reporting year). ***Source:*** Local Data Bank (LDB). ***Notes:*** indicator based on CSO source data (authors' own calculations)
School leavers taking up their first jobs – by school type	School leavers taking up their first jobs, by school type, as a percentage of the total number of school leavers taking up employment for the first time. ***Source:*** Local Data Bank (CSO). ***Notes:*** indicator based on CSO source data (authors'own calculations)

Name of the indicator	Description of the indicator
Average gross monthly pay	This is the ratio of the total gross pay under the payroll, fees paid to certain groups of employees for work under contracts of employment, profit distributions of shares or in balance-sheet surplus in cooperatives and additional annual pay for public sector employees to the average number of employees in the period concerned; after eliminating people doing outwork and employed abroad. ***Source:*** Central Statistical Office, Statistical Offices in the regions
Individuals aged 18-29 conducting business activity	It is an individual who is an entrepreneur in the meaning of the Act of 2 July 2004 on the Freedom of Business Operations and another individual who engages in business operations on his/her own account for profit and an individual who keeps his/her own farm. ***Source:*** Central Register and Information on Economic Activity, Ministry of Economy ***Notes:*** The data concern active and suspended business activities
Young people's status of employment in the labour market	The answer to the question in the questionnaire in the *Social Diagnosis* survey: What type of work does the person in his/her main place of work? ***Source:*** Social Diagnosis ***Notes:*** indicator based on source data (*Social Diagnosis* survey database)

For selected fields and 30 selected indicators were collected statistical data available to all Polish regions and built the so-called "electronic version of the model," which was posted on the main page of the Regional Labour Office in Białystok - Podlaski Labour Market Observatory and Economic Forecasting: **http://www.obserwatorium.up.podlasie.pl/index.php/strony/9945/news/3249**

This general access version of the model is on the one hand electronic presentation tool of its assumptions, showing areas and indicators adopted for the analysis, on the other hand it is a database (measures and indicators) selected for the model in particular fields of research. An important element of this model is the presentation of the indicator card, including their exact characteristics:

- the name and definition of the indicator (with source definitions)
- calculation algorithm,
- territorial unit for availability,
- publication frequency of the indicator,
- available age ranges for which data are presented,
- the sources of index publication and interpretative notes.

2.4. Evaluation of the export model to monitor the situation of young people in the labour market

The task, which was undertaken by the Polish labour market institutions, has resulted in the development of the first version of the model to monitor the situation of young people in the labour market, the so-called **expert model**. On the one hand, it was achieved a positive end result in the form of defining the areas of youth activities and indicators desired to characterize the situation of young people in given area. The information on available sources of data and indicators that could be used in a system activities for evaluation the situation of young people in the labour market was collected and systematized. On the other hand, it was identified a number of problems decisive for imperfections of the model that defined the need for further development of the model in order to achieve a system which is coherent and acceptable by different participants of the labour market to monitor young people at the national level, which could then be used at the transnational level.

The performed works made it possible to formulate first of all the **desired vision** for monitoring of young people. The model is an expression of desire for unification of methods for monitoring the situation of young people. However, not all elements of this vision proved to be possible to implement. As the most serious defined problems were:

a) "Threat" of the systematic sourcing of statistical data, meaning: limited access to data, the uncertainty of the continuance of their collection or methodological problems lowering the reliability of results obtained by their use (for example the issue concerning the representativeness of data at the regional level, derived from the study "Social Diagnosis");
b) some indicators desirable to include into the model do not allow for separation in presented data the age categories which are within the sphere of interest of the model (for example in the case of „disposable income per person in the household");
c) diversity of reporting periods (for the desired period in the model was adopted a year, for some indicators, such as „average salary", statistical data are presented every 2 years) and the delay in the publication of data, for example, from the Labour Force Survey (LFS);
d) **a** part of desired data were cataloged as unpublished data, such as rate of entrepreneurship among young people, in all such cases the

data acquisition required the intervention of concerned regions in the relevant institution (Central Statistical Office, relevant ministries).

Additionally, it should be stressed that the proposed model focused on the supply side and does not take into account the demand side of the labour market. Despite awareness of the authors concerning the incomplete catalog of areas having an impact on the situation of young people in the labour market, it failed to take into account the demand for labour due to the lack of basic reliable information on the demand for labour in the regions. Due to the fact that the available data sources (data on jobs available in public employment services) present data not fulfilling the function of information (data incompleteness), and conducted research of labour demand have an extemporary nature of research, based in each region on various, author's methodologies. The information gap in this area prevented the observation of relevant phenomena, such as the assessment of chances to find a job by young people.

Another problem has become not included in the model the phenomenon of migration of young people. The lack of reliable data showing this phenomenon has the impact on it. The data available in the public statistics based on the registrations and de-registrations of permanent residence were considered as not taking into account the actual migration movements.

Therefore, in the scope of further work on the model the working group has recommended:

a) taking actions associated with obtaining access to data indicated in this report as information gaps, particularly going beyond the research areas included in the model (the demand side of labour market and migration of young people);
b) implementation of the model in other European countries, including:
   – the begin of cooperation in order to extend or clarify partial indicators reflecting the increasing phenomenon in the regions of other countries, not observed in Poland,
   – determination of data sourcing and availability at the regional level in other European countries;

- common filing a request by ELRNM members to Eurostat requesting for the calculation of missing indicators at regional level (NUTS 2) for all countries, which data are at its disposal,

c) focusing the work on reducing the set of indicators to the most important (with a high degree of significance) influencing the situation of young people in the labour market and the creation on that basis the synthetic measure for comparative interregional analysis. The construction of such indicators was considered as necessary for the identification of (territorial) areas, where the situation of young people is deteriorating (warning function), as well as for the direction of financial instruments in accordance with the principle of concentration and co-ordination of EU regional policy (budgeting function). The use of so developed, widespread and systematic model powered with data to monitor the situation of young people in the labour market, was considered necessary for the purpose of determining the precise regional, national policies implemented across the entire European community (planning and programming function).

3. Expert and statistical model to monitor the situation in the labour market

The recommendations arising from the obtained work effects on the expert model to monitor the situation of young people in the labour market became the basis for the search of solutions that would allow to eliminate non-relevant indicators from the perspective of the situation of young people in the labour market, and allowing for the creation of specified statistical indicators. The indicators selected in the expert model were subjected to statistical analysis.

3.1. Verification of indicators and development of synthetic measures

The statistical analysis was to include the data for the years 2000-2012. Due to unsuccessful attempts to obtain the data for all recommended indicators (for example educational activity of young people), in the case of some indicators the collection of data for different periods of time, **finally the analysis was conducted on the data from 2011 and data for one additional year different for each analysed field, dependent on the availability of data**.[37]

At the first stage of work, for selected variables was determined whether its impact on the situation of young people in the labour market is positive **(stimulant)**, negative (**destimulant**) or positive, and if its value is in an appropriate interval **(nominant).** The indicators were then unified according to the purpose of analysis and tested target group (persons aged 15-34 years). For this purpose, as far as possible, from the components in the selected age subgroups (e.g., 18-24, 25-29, etc.) was created a synthetic indicator for the entire group. Similarly, the efforts were made to group the indicators that concerned the problems associated with each other (for example, the share of people having computer with internet access and the share of persons with printer). The accuracy and reliability of proposed indicators were verified with respect to the correlation of individual mea-

[37] M. Wałaszek, B. Osiewalska, *Młodzi na rynku pracy. Analiza statystyczna wskaźników ujętych w modelu monitorowania sytuacji osób młodych na rynku pracy,* Statistical Office in Kraków, Kraków 2013r., page 9.

sures. In the case where two indicators showed a strong correlation (correlation coefficient is greater than the module 0.8), was chosen the indicator which could more differentiate the regions (had a higher coefficient of variation). In the conducted analysis the selection criterion of variables based on the value of the variation coefficient was changed due to the specific selected areas, where not always are observed significant differences in the values of individual indicators[38]. The same is for example in the field of demography, where the proposed measures are at the same level in all regions, but it was assumed that even minor differences, through the scale effect (reflected in the inhabitants of the region in general), are important in the overall analysis[39].

A synthetic measure that reflects the situation of young people in particular areas of the model and in the case of the aggregated indicator, was created by using **the standardized sum method**, which belongs to the group of non-model methods of linear ordering and is one of the most popular taxonomic methods[40].

According to the guidelines of the method used in the analysis were performed the following steps:

- standardization of all variables *k*,
- change of destimulants to stimulants by multiplying the value of standardized variable value by - 1,
- adding the values of so created variables for each *n* case (here regions).

They resulted in the creation of an aggregated indicator for the area *o,* where $o \in O = \{Z, B, D, E, R, A\}$: *Z* –Employment, *B* –Unemployment, *D* – Demography, *E* – Education, *R* –Family and living conditions, *A* – Social activity.

This ratio expresses the following formula:

[38] In the statistical analysis is usually assumed that the variables which sufficiently differentiate investigated cases and which should be included in the study, have a coefficient of variation greater than 10%.

[39] Ibidem, page 9-10.

[40] M. Wałaszek, B. Osiewalska, *Młodzi na rynku pracy. Analiza statystyczna wskaźników ujętych w modelu monitorowania sytuacji osób młodych na rynku pracy,* op. cit., page 17-18, J. Pociecha, B. Podolec and others., *Metody taksonomiczne w badaniach społeczno-gospodarczych*, Warsaw: Państwowe Wydawnictwo Naukowe, 1988, page 69–71.

$$W_{i.}^{O} = \sum_{j=1}^{k} w_{ij}$$, $i=1,\ldots,n$,

where w_{ij} means standardized value, j- its stimulants for i- this case.[41]

Then, the obtained values of synthetic indicator were ranked (usually by sorting from the largest to smallest). In this way the case holding the rank 1 was considered to be the best in respect of adopted criterion, and the case of rank n to be the worst one.

The synthetic indicator expressed in standardized values shows how the situation in the region differs from the average for all regions (the region situation depends on the background, which is in the other regions). The positive values suggest that it is better than on average in all regions, negative - that worse.

In the process of **general synthetic indicator** creation connecting the information from all areas, the situation of young people was considered with respect to influence of each of these areas on general labour market conditions. It was assumed that the phenomena in investigated fields with varying intensity and at different speeds affect the development of that market. Therefore, at the development stage of synthetic indicator were introduced appropriate weights for each analyzed field[42].

"The fields that directly characterize the situation of young people in the labour market, are employment and unemployment. Through the indicators taken into account it is possible to measure the effects of these changes in a very short period of time. In addition, these measures are the most sensitive and therefore they present current situation in the best way. Therefore, the fields of unemployment and employment should have the greatest importance of all the fields concerned"[43]. In view of adopted assumption these areas have been given the highest weights.

Education, social activity, demography, family and living conditions were considered to be areas directly affecting the situation of young people in the labour market. Besides all changes taking place they affect the situation of young people in a relatively long period of time: in the case of education after a few, in the case of the demographic structure of population - after several years. At the same time it was found that the

[41] Ibidem, page 17-18.
[42] Ibidem, pages 27-28.
[43] Ibidem, page 28.

areas of education and social activity are the most important in respect of influence, especially from the point of view of the employer, because they show a direct relationship with competence and professional qualifications of potential employees. According to the adopted assumption, these fields have been given weights slightly higher than the field of demography and family and living conditions. It was concluded at the same time that the changes taking place in their scope produce effects for the situation of young people in the labour market following the most slowly, and their impact seems to have consequences after many years[44].

"With reference to above considerations, in this analysis - after detailed discussions and initial calculation - it was decided to give to particular areas the following weights:

- unemployment– weight 0,25
- employment – weight 0,25
- education – weight 0,15
- social activity– weight 0,15
- demography – weight 0,1
- family and living conditions– 0,1."[45]

„The synthetic indicators for individual areas were weighted in accordance with the approved scheme, and then added. Thus was created the aggregated indicator that describes the situation of young people together in all analyzed fields for all *n* regions, which can be expressed by the formula:

$$W_{i.} = \sum_{o \in O} W_{i.}^{o}, \; i=1,\ldots,n,$$

where, like before, $o \in O = \{Z, B, D, E, R, A\}$: Z – employment, B – unemployment, D – demography, E – education, R – family and living conditions, A – social activity, and $W_{i.}^{o}$ is a synthetic indicator for a given field and the region *i*."[46]

The indicator created in such way was subsequently ranked, wherelike in synthetic indicators for a given area- a case having a rank 1 (the highest value of the indicator) was considered to be the best, and the case of rank *n* - was the worst one.[47]

[44] Ibidem, page 28.
[45] Ibidem, page 28.
[46] Ibidem, page 28.
[47] Ibidem, page 28.

3.2. The results of analysis of the situation of young people in key areas: employment and unemployment

After eliminating variables (indicators) closely correlated and difficult to interpret, for the creation of synthetic indicator in the field of **employment** were used:

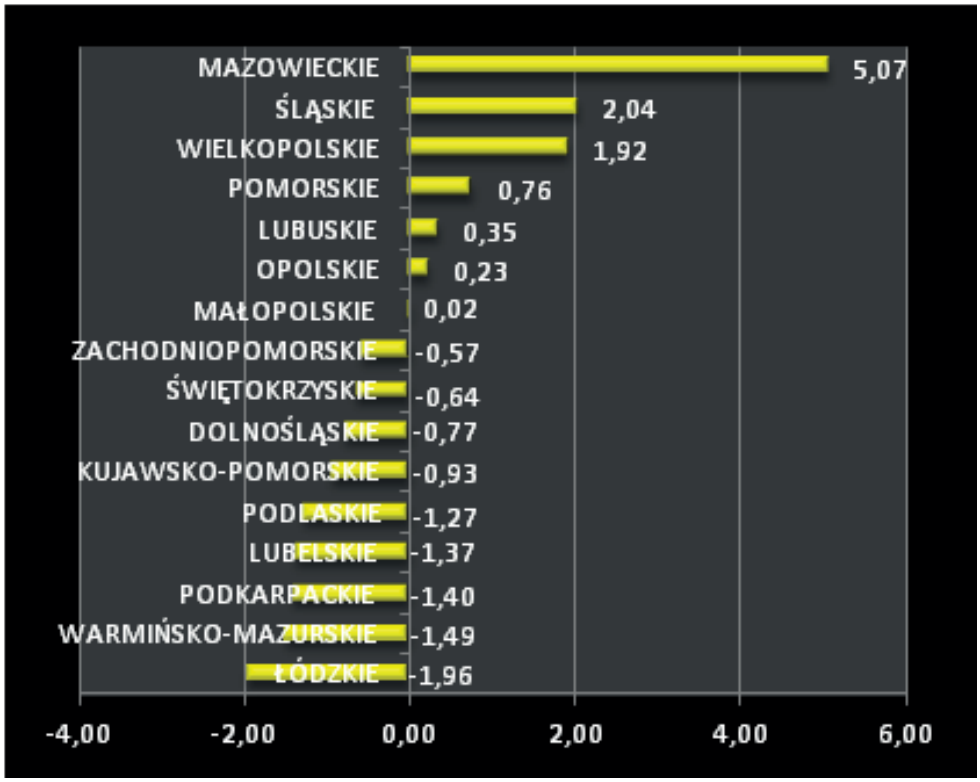
- economic activity coefficient
- share of school leavers taking up employment
- average monthly gross salary.[48]

The analysis excluded the employment rate, which was strongly correlated with the activity coefficient. Despite the higher variation coefficient it was not taken for analysis, due to the lack of access to statistical data for persons aged 15-34 years. In the analysis, however, was recommended to include this indicator in the analysis in the future, after obtaining all necessary data.[49]

The obtained synthetic indicator in the field of **employment** adopted the values in the range from -1.96 for the Łódzkie Region to 5.07 for the Mazowieckie Region. The comparison of indicator for investigated years 2006 and 2011 showed that the position of the Mazowieckie Region has not changed in comparison with 2006, but the situation of the Łódzkie Region has significantly deteriorated. It fell from the second position in 2006 to the sixteenth position, and that may be associated with a decrease in the share of school leavers taking up employment. In respect of partial indicators adopted for the model the average monthly gross salary in the Mazowieckie Region had the best score in comparison with the rest of the regions. The wages here have proven to be higher by more than 38% than the average salary in all provinces and nearly 26% than the earnings in the second largest province- the Dolnośląskie Region. The worst situation of young people in the field of employment was observed in the region of Łódź. The partial indicators such as average monthly gross wages and share of school leavers taking up employment for the first time, gave them the eleventh and sixteenth place, and the second rate with regard to economic activity.

[48] Ibidem, page 18.
[49] Ibidem, pages 10-11.

Diagram 1 Ranking of regions in 2011, according to the values of the synthetic indicator in the field of **employment**



Source: M. Wałaszek, B. Osiewalska, *Młodzi na rynku pracy. Analiza statystyczna wskaźników ujętych w modelu monitorowania sytuacji osób młodych na rynku pracy,* op. cit., page 19

After a preliminary analysis of the indicators proposed by the working group in the field of **unemployment** for the creation of the synthetic indicator were used five partial indicators:

- share of unemployed aged 18-34 in the total number of unemployed;
- unemployment rate of persons aged 15-34 years;
- fluctuation coefficient for unemployed aged 18-24 years;
- share of unemployed aged 18-24 years with no work experience in the group of unemployed aged 18-24 years;
- share of long-term unemployed at the age of 18-34 in the **total** group of unemployed aged 18-34 years.[50]

It should be mentioned that the analysis excluded the indicator: **the share of unemployed persons aged 18-24 according to the level of education in the total number of unemployed aged 18-24 (registered unemployment).** The indicator was excluded from the analysis because of

[50] M. Wałaszek, B. Osiewalska, *Młodzi na rynku pracy. Analiza statystyczna wskaźników ujętych w modelu monitorowania sytuacji osób młodych na rynku pracy,* op. cit, page 20.

the difficulty in determining the direction of its impact on the situation of young people (positive / negative). Without detailed analysis of cause and effect it proved to be impossible to determine which type of education is more desirable / undesirable from the viewpoint concerning the field of unemployment[51].

The creation of the synthetic indicator in the field of **unemployment** was conducted for the year 2011 and comparatively for the year 2005. The values of the synthetic indicator for 2001 covered the range from -5.41 to 3.67, and very clearly differentiated the regions. The lowest value of the indicator was observed in the Region of Podkarpackie, both in 2011 and 2005. At the fifteenth position ranked the Region of Świętokrzyskie (like in 2005). The most favorable situation in the field of unemployment was observed in the Region of Dolnośląskie moving up in the ranking from the sixth (in 2005) to the first place (in 2011). The Region of Mazowieckie ranked on the third place in 2005 and then on the fifth in 2011[52].

Table 4. Results of the construction of the synthetic indicator in the field of **unemployment**

Region	Synthetic indicator 2005	Ranking 2005	Synthetic indicator 2011	Ranking 2011
dolnośląskie	1,50	6	3,67	1
kujawsko-pomorskie	-3,31	14	-2,00	13
lubelskie	-1,87	13	-2,74	14
lubuskie	2,11	4	2,07	4
łódzkie	2,73	2	1,00	7
małopolskie	1,76	5	-0,83	10
mazowieckie	2,27	3	1,85	5
opolskie	0,68	8	2,63	3
podkarpackie	-4,22	16	-5,41	16
podlaskie	0,14	9	-1,20	11
pomorskie	0,81	7	0,73	8
śląskie	2,97	1	3,11	2
świętokrzyskie	-4,02	15	-3,41	15
warmińsko-mazurskie	-0,69	12	-1,24	12

[51] Ibidem, page 12.
[52] Ibidem, page 20.

Region	Synthetic indicator 2005	Ranking 2005	Synthetic indicator 2011	Ranking 2011
wielkopolskie	-0,67	11	0,34	9
zachodniopomorskie	-0,19	10	1,42	6

Source: M. Wałaszek, B. Osiewalska, *Młodzi na rynku pracy. Analiza statystyczna wskaźników ujętych w modelu monitorowania sytuacji osób młodych na rynku pracy,* op. cit., page 21.

The extending of analysis in the field of unemployment at the level of partial indicators shows the lowest values in three of five partial indicators in relation to the Region of Podkarpackie: the unemployment rate for people aged 15-34, fluctuation coefficient for the unemployed aged 18-24, the share of long-term unemployed aged 18-34 in the total number of unemployed aged 18-34. However, for other indicators adopted for this region the values always were unfavorable in comparison with the average for all provinces.

3.3. The results of analysis of the situation of young people in the context fields: demography, education, family and life conditions, social activity

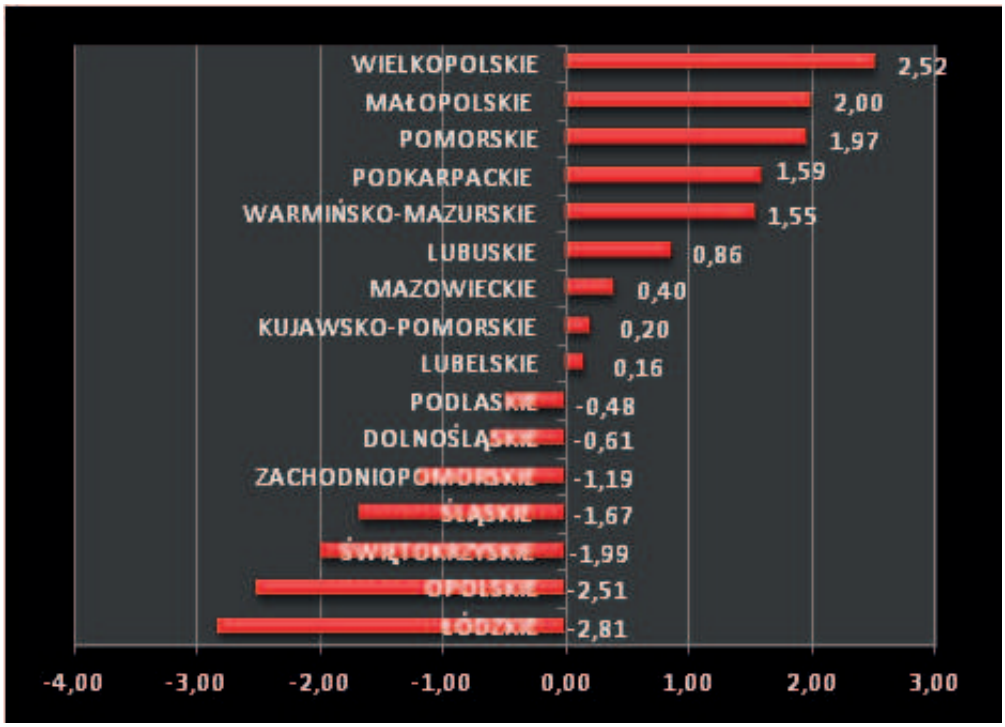
The synthetic indicator in the field of demography is built on the basis of two indicators adopted for the analysis:

- share of people aged 15-34 in the total population,
- the number of births per one thousand inhabitants.[53]

In 2011, the best in respect of considered criterion was the situation of young people in the Region of Wielkopolskie (the first position in 2011 in comparison with the third in the additional analysis for the year 2002), then the Małopolska Region (the fifth position in 2002) and the Pomorskie Region (also on the third position in 2002). In these provinces phenomena related to population aging (measured in the analysis by the share of people aged 15-34 in the total population and the number of live births per 1 thousand inhabitants) were less intense than in other provinces. The worst situation of young people in respect of demography was observed in 2011 in the Łódź Region, with a clear deviation from the other provinces and unchanged position since 2002[54].

[53] Ibidem, page 22.
[54] Ibidem, page 22.

Diagram 2. Ranking of regions in 2011, according to the synthetic indicator in the field of **demography**



Source: M. Wałaszek, B. Osiewalska, *Młodzi na rynku pracy. Analiza statystyczna wskaźników ujętych w modelu monitorowania sytuacji osób młodych na rynku pracy,* op. cit., page 22.

In the next context field, the field of **education**, after the analysis of reliability of the indicators proposed by the working group for the analysis were adopted two indicators: early leavers from education and vocational examination pass rate. Four of six recommended indicators were excluded from the analysis: participation of vocational school students in the total number of students, the number of graduates by the field of education, educational activity of young people, the structure of education of young people, instead of which were suggested three others. In total, for the creation of the synthetic indicator were used five measures:

- early school leaving,
- vocational examination pass rate,
- matric pass rate,
- university graduates per 10 thousand of population,
- post-graduate students and PhD students per 10 thousand of population.[55]

[55] Ibidem, pages 14-15.

The obtained values of the synthetic indicator for the year 2011 covered the range from -4.9 to 6.5 and very strongly differentiated the regions. The Małopolskie Region, followed by the Mazowieckie Region had the highest positions in the ranking, and strongly outdistanced other regions of the country. The situation of young people with regards to education in these regions proved to be the most advantageous. On the same places they were also in 2007. The worst results in respect of education had: the Zachodniopomorskie Region (the sixteenth position in comparison with the fifteenth one for additional analysis carried out in 2007) and the Region of Warmia and Mazury (the fifteenth position in comparison with the twelfth position in 2007).[56]

Table 5. Results of the construction of the synthetic indicator in the field of **education**

Region	Synthetic indicator 2007	Ranking 2007	Synthetic indicator 2011	Ranking 2011
dolnośląskie	-1,35	11	1,41	3
kujawsko- pomorskie	0,34	7	0,69	6
lubelskie	1,14	3	0,46	7
lubuskie	-4,47	16	-2,46	13
łódzkie	0,90	5	-0,21	10
małopolskie	6,45	1	6,46	1
mazowieckie	6,35	2	5,10	2
opolskie	-2,13	13	-2,83	14
podkarpackie	0,29	8	-0,51	11
podlaskie	0,94	4	1,19	4
pomorskie	-1,00	10	-0,03	9
śląskie	-0,50	9	0,43	8
świętokrzyskie	-2,17	14	-1,43	12
warmińsko- mazurskie	-2,06	12	-4,61	15
wielkopolskie	0,72	6	1,18	5
zachodniopomorskie	-3,44	15	-4,86	16

Source: M. Wałaszek, B. Osiewalska, *Młodzi na rynku pracy. Analiza statystyczna wskaźników ujętych w modelu monitorowania sytuacji osób młodych na rynku pracy,* op. cit., page 24.

[56] Ibidem, page 23.

In another area of the model, **family and living conditions**, in the case of indicator where households were equipped with some durable goods (computer with internet access, printer, car, mobile phone) - from four available indicators, were created two: households with a private car and households equipped with small durable goods (computer with internet access, mobile phone, printer - an averaged indicator). In this area was also proposed an additional indicator: employment of people with disabilities[57]. Finally, the analysis included six measures:

- average monthly income per person in the household,
- risk of poverty rate,
- population in households benefiting from social assistance,
- households with a private car,
- households equipped with small durable goods (computer with internet access, printer, mobile phone),
- employment rate of people with disabilities[58].

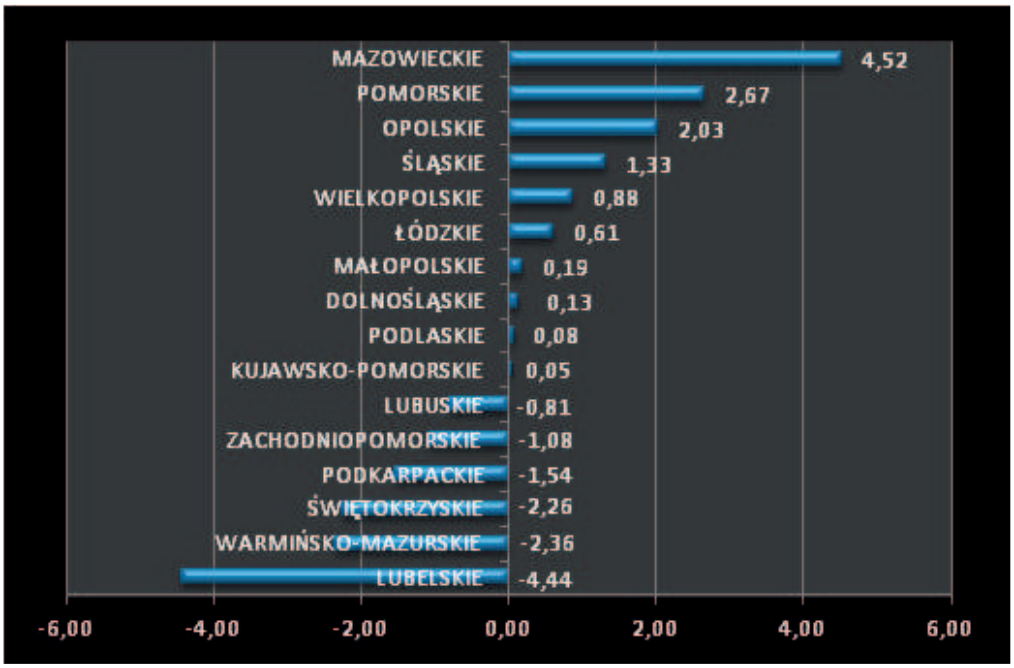
The comparison of values for synthetic indicator in 2011 between Polish regions leads to the conclusion that the best conditions in the field of family and living conditions have occurred in the Mazowieckie Region, which strongly stands out in this respect from other regions. The position of the province was significantly affected by the maximum value of the average monthly disposable income for one person in the household and the largest share of households with small durable goods. Additional analysis performed for the year 2008 also confirms the best conditions for this region. The worst situation of young people in the field of family and living conditions in 2011 was observed in the Lubelskie Region (the sixteenth position in comparison with the fifteenth one in 2008), mainly due to low income of households, the highest risk of poverty rate and the lowest share of households with small durable goods.[59]

[57] Ibidem, pages 24-25.

[58] M. Wałaszek, B. Osiewalska, *Młodzi na rynku pracy. Analiza statystyczna wskaźników ujętych w modelu monitorowania sytuacji osób młodych na rynku pracy,* op. cit., pages 24-25.

[59] Ibidem, page 25.

Diagram 3. Ranking of regions in 2011 according to the synthetic indicator in the field of family and living conditions



Source: M. Wałaszek, B. Osiewalska, *Młodzi na rynku pracy. Analiza statystyczna wskaźników ujętych w modelu monitorowania sytuacji osób młodych na rynku pracy,* op. cit., page 25.

In the last field, **social activity**, 2011 was adopted as the year of diagnosis. The proposed partial indicators were based on proposals of the working group:

- people involved in volunteering aged 16-34 years in the total number of respondents in this age group,
- membership in NGOs of people aged 16-34 years in the total number of respondents in this age group,
- participation in religious services and meetings of people aged 16-34 years in the total number of the respondents in this age group,
- participation in activities aimed at the local community of people aged 25-34 years in the total number of the respondents in this age group,
- participation in the last elections of people aged 25 - 34 years in total number of the respondents in this age group.

Due to the indicators applied in this field using data from the Social Diagnosis, conducted every two years, the funding of which is dependent

on the European Union, was recommended the exploration of data from other sources in the future[60].

The values of the synthetic indicator obtained for the year 2011 covered the scope from -9.5 to 4.6, and therefore they strongly differentiated the regions. The lowest value of indicator was observed in the Region of Warmia and Mazury (in the comparative analysis performed for the year 2000 this region was on the fifteenth place). The highest level of social activity showed young people of the Zachodniopomorskie Region, which was promoted from the third position in 2000 to the first one in the ranking. An interesting fact is that the Mazowieckie Region was on the fifteenth place in both 2011 and 2000 years.[61]

Table 6. Results of the construction of the synthetic indicator in the field of **social activity**

Region	Synthetic indicator 2000	Ranking 2000	Synthetic indicator 2011	Ranking 2011
dolnośląskie	-1,23	11	0,49	8
kujawsko-pomorskie	-2,12	12	-2,29	13
lubelskie	3,48	2	3,24	4
lubuskie	-0,93	10	-1,42	11
łódzkie	-2,80	14	-2,53	14
malopolskie	2,02	4	3,84	3
mazowieckie	-3,49	15	-2,74	15
oplolskie	0,70	8	0,03	9
podkarpackie	7,90	1	4,44	2
podlaskie	1,13	7	-0,39	10
pomorskie	2,71	3	4,59	1
śląskie	-0,93	9	-1,98	12
świętokrzyskie	2,01	5	2,82	5
warmińsko-mazurskie	-7,39	16	-9,52	16
wielkopolskie	1,26	6	0,93	6
zachodniopomorskie	-2,32	13	0,50	7

Source: M. Wałaszek, B. Osiewalska, *Młodzi na rynku pracy. Analiza statystyczna wskaźników ujętych w modelu monitorowania sytuacji osób młodych na rynku pracy,* op. cit., page 27.

[60] Ibidem, page 25.
[61] Ibidem, page 25.

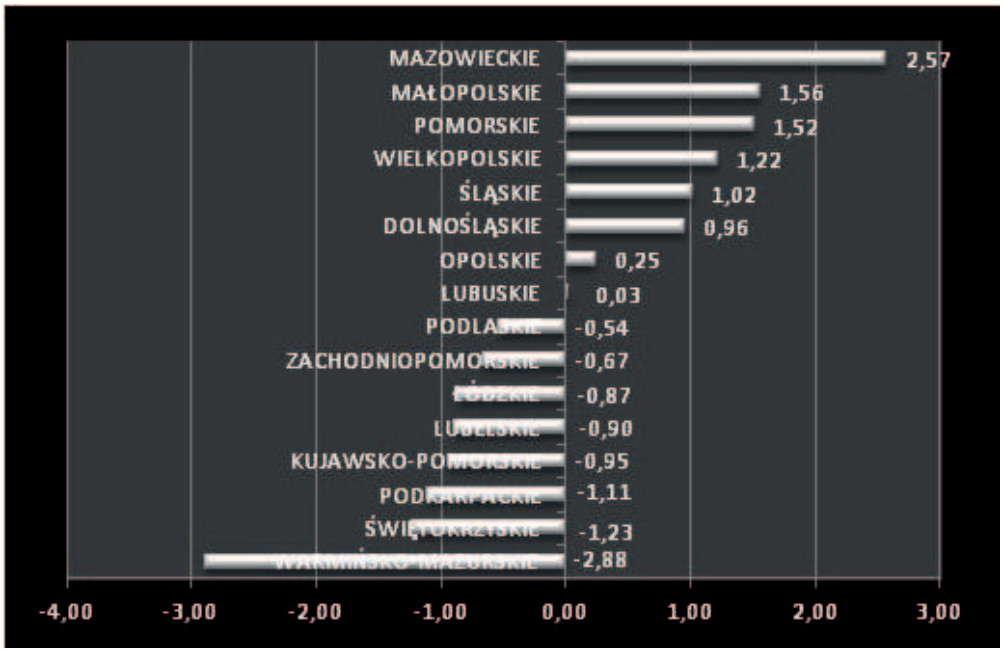
„In the Pomorskie Region (the highest value of the indicator), all sub-indicators reached a value higher than the average for all regions. Two partial indicators had here the second largest percentages (membership in non-governmental organizations of persons aged 16-34 years for the total number of persons in this age group, participation in activities aimed at the local community of people aged 25-34 for the total number of people in this age group). On the other hand the Region of Warmia and Mazury (the lowest value of the synthetic indicator) for four out of five sub-indicators had the lowest values. Only in the case of indicator associated with participation in activities aimed at the local community it was on the eleventh place in the ranking."[62]

3.4. The situation of young people in the labour market- synthetic analysis

The synthetic indicator for all fields together was calculated for the year 2011. It was the only year when data were collected for all of the indicators proposed to create a statistical model based on the method of standardized sums. The aggregated indicator had the value from -2.88 for the Region of Warmia and Mazury to 2.57 for the Mazowieckie Region. This means the best situation of young people in **the labour market during the analyzed year in the Mazowieckie Region and the worst in the Region of Warmia and Mazury**.

[62] Ibidem, page 25.

Diagram 4. Ranking of regions in 2011 according to the values of **general aggregated indicator** describing **the situation of young people in the labour market**



Source: M. Wałaszek, B. Osiewalska, *Młodzi na rynku pracy. Analiza statystyczna wskaźników ujętych w modelu monitorowania sytuacji osób młodych na rynku pracy,* op. cit., page 29.

On the basis of the aggregated indicator value Polish regions were divided into four groups. Into **the fourth group** with the worst conditions in the labour market in relation to the assessment of the situation of young people, where were observed **very low values of general indicator**, was included one region: *Warmia and Mazury*.

Into **the third group** of provinces with rather unfavorable situation of young people in the labour market in comparison with other regions of the country (**low indicator values**) were included the following regions: *Podlaskie, Lubelskie, Podkarpackie, Świętokrzyskie, Łódzkie, Kujawsko- Pomorskie, Zachodniopomorskie.* Into **the second group** of provinces with the situation of young people in the labour market evaluated as good (**high indicator values**), were included the regions: *Śląskie, Opolskie, Dolnośląskie, Wielkopolskie and Lubuskie.* In **the first group** are the regions having the most favorable conditions in the labour market for persons aged 15-34 years. The regions with the highest and very high values of indicator are: *Małopolskie, Mazowieckie* and *Pomorskie*.[63]

[63] Ibidem, page 29.

Individual groups of regions were defined on the basis of the following formulas:

$x_i \leq \overline{x} - s$ – a very low level of general indicator

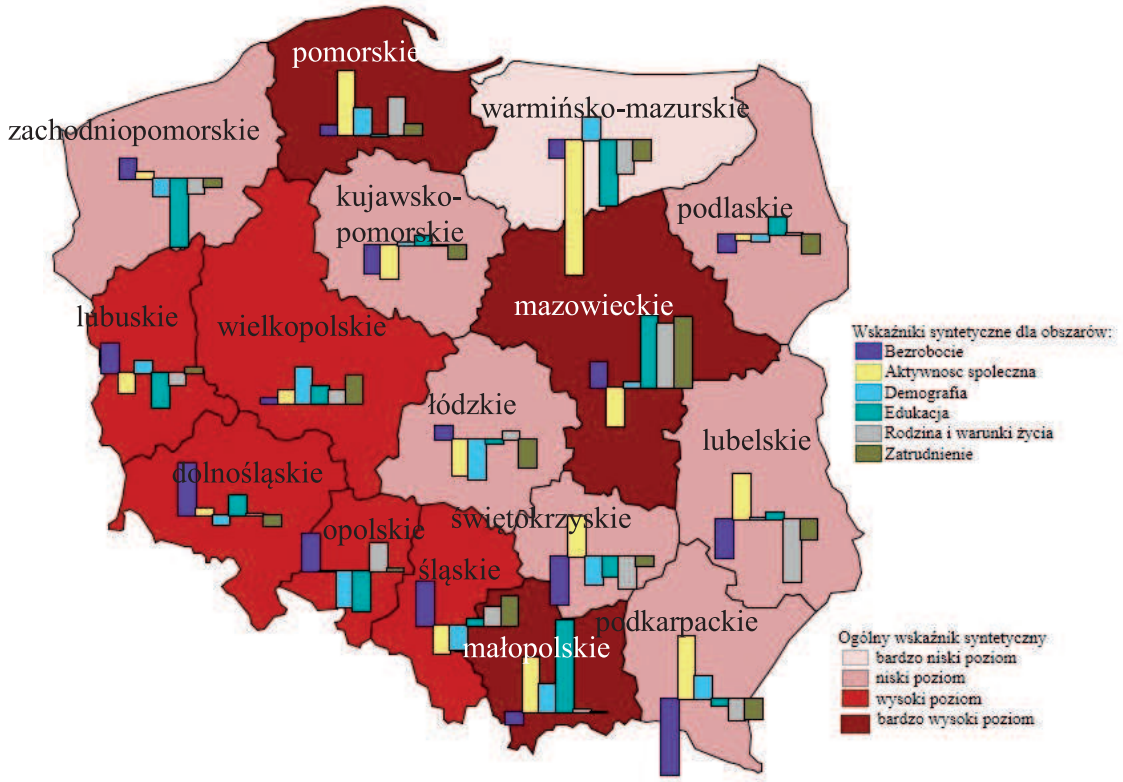
$\overline{x} - s < x_i \leq \overline{x}$ – a low level of general indicator

$\overline{x} < x_i \leq \overline{x} + s$ – a high level of general indicator

$x_i > \overline{x} + s$ – a very high level of general indicator

where $\overline{x}$ – average value of general indicator, s – standard deviation of general indicator, x_i – general value of the indicator for each region p.[64]

Map 1. The situation of young people in the labour market in 2011



Source: M. Wałaszek, B. Osiewalska, *Młodzi na rynku pracy. Analiza statystyczna wskaźników ujętych w modelu monitorowania sytuacji osób młodych na rynku pracy,* op. cit., page 30.

The summary of the synthetic indicators values obtained in particular fields of activity of young people and the aggregated general indicator are presented in Table 7.

[64] Ibidem, page 31.

Table 7. Synthetic indicators values in particular fields and aggregated general indicator in 2011

Region	Employment	Unemployment	Education	Social activity	Demography	Family and living condition	Aggregated general indicator
dolnośląskie	-0,77	3,67	1,41	0,49	-0,61	0,13	**0,96**
kujawsko-pomorskie	-0,93	-2,00	0,69	-2,29	0,20	0,05	**-0,95**
lubelskie	-1,37	-2,74	0,46	3,24	0,16	-4,44	**-0,90**
lubuskie	0,35	2,07	-2,46	-1,42	0,86	-0,81	**0,03**
łódzkie	-1,96	1,00	-0,21	-2,53	-2,81	0,61	**-0,87**
małopolskie	0,02	-0,83	6,46	3,84	2,00	0,19	**1,56**
mazowieckie	5,07	1,85	5,1	-2,74	0,40	4,52	**2,57**
opolskie	0,23	2,63	-2,83	0,03	-2,51	2,03	**0,25**
podkarpackie	-1,40	-5,41	-0,51	4,44	1,59	-1,54	**-1,11**
podlaskie	-1,27	-1,20	1,19	-0,39	-0,48	0,08	**-0,54**
pomorskie	0,76	0,73	-0,03	4,59	1,97	2,67	**1,52**
ślaskie	2,04	3,11	0,43	-1,98	-1,67	1,33	**1,02**
świętokrzyskie	-0,64	-3,41	-1,43	2,82	-1,99	-2,26	**-1,23**
warmińsko-mazurskie	-1,49	-1,24	-4,61	-9,52	1,55	-2,36	**-2,88**
wielkopolskie	1,92	0,34	1,18	0,93	2,52	0,88	**1,22**
zachodniopomorskie	-0,57	1,42	-4,86	0,50	-1,19	-1,08	**-0,67**

Source: M. Wałaszek, B. Osiewalska, *Młodzi na rynku pracy. Analiza statystyczna wskaźników ujętych w modelu monitorowania sytuacji osób młodych na rynku pracy,* op. cit., page 30.

In the table with red was marked the largest and the smallest value of the indicator in given area. The analysis of the value of aggregated synthetic indicator at the level of regions in relation to the synthetic components in different areas shows the strengths and weaknesses of individual regions in specific areas of activity having an impact on the situation of young people in the labour market. For example, the Mazowieckie Region, having the highest value of the aggregated indicator, has at the same time one of the worst situation in the field **of social activity** and **demography**. The identified situation may make somebody think about the strength of the impact of area of **social activity** on the overall situation of the youth

in the labour market. It shows that social activity which, in accordance with obtained value of synthetic indicator in this area: -2.74, is not a strong point of the youth from the Mazowieckie Region it may have a impact on the overall situation of youth in the labour market (which in the case of the Mazowieckie Region is the best in the country).

3.5. Conclusions and recommendations resulting from the work carried out on the creation of expert model to monitor the situation of young people in the labour market

The statistical aggregated indicator obtained during the creation of expert model can be called "satellite indicator to evaluate the situation of young people in the labour market" because the synthetic indicators concern both the areas directly related to the labour market (**employment and unemployment**) and its environment (**demography, education, family and living conditions and social activity**)."[65]

The analysis of individual indicators carried out during the model development caused on the one hand the elimination of numerical absolute data from the expert model developed by the expert working group. On the other hand, it allowed for the elimination of indicators such as the structure of young people in given area in respect of: education, type of education or the type of contract that by the creation of synthetic indicators are difficult to use and interpret. They do not allow for unequivocal determination of the variables most desirable from the point of view of a particular area, such as in the case of the employment structure of young persons it should be indicated one variable, for example a contract for an indefinite period, which would be the most desirable (undesirable) for the studied area. In the current model the attention was paid to the fact that these variables could be used to describe finally obtained values within the aggregated indicator, such as "the average share of people employed under a contract of employment of indefinite duration in the group of regions with a very low level of overall indicator was 34,8%".[66]

[65] Ibidem, page 31.
[66] Ibidem, page 31.

The work on the expert and statistical model also resulted in the development of a number of important recommendations:

- indication of the need to connect the key areas- **employment and unemployment** in one: **the situation in the labour market** and to add to this area the indicators: job vacancies per 1 thousand of economically active persons and the indicator developed on the basis of CSO research associated with development barriers arising from employment costs[67]. In this way, the resulting image will be willingness of employers to hire new workers;
- adoption of the unified subjective scope of study - a detailed analysis of available statistical data showed the reference of particular statistics to different age groups, for example in the field of **unemployment** the unemployment rate is calculated for persons aged 15-34 years, and the variability ratio for unemployed persons 18-24 years.[68]

The obtained model is called a statistical and expert model due to a combination of statistical methods in the expert assessment of the impact of particular context and key fields on the overall situation of youth in the labour market. Both the recommendations arising from the work on the model and the element of expert evaluation used in it, have become one of the reasons to look for the next solutions which could help to eliminate the bad side of the model. In relation to the expert evaluation of influence of given area on the situation of young people in the labour market, it became controversial and difficult to discuss why the experts assigned specific weights to particular areas and did not take into account the negative impact of given areas on the value of the aggregated indicator.

[67] M. Wałaszek, B. Osiewalska, *Młodzi na rynku pracy. Analiza statystyczna wskaźników ujętych w modelu monitorowania sytuacji osób młodych na rynku pracy, op. cit., page. 31: Koniunktura w przemyśle, budownictwie, handlu i usługach 2000-2013* [online], Central Statistical Office [access: 04.12.2013], November 2013, available on: http://www.stat.gov.pl/gus/5840_2794_PLK_HTML.htm. exemplary survey http://www.stat.gov.pl/cps/rde/xbcr/gus/AK-U-m_2013.pdf

[68] M. Wałaszek, B. Osiewalska, *Młodzi na rynku pracy. Analiza statystyczna wskaźników ujętych w modelu monitorowania sytuacji osób młodych na rynku pracy,* op. cit., page 31.

4. The transnational model of monitoring the situation of young people in the labour market

The works on the transnational model have been taken in accordance with the recommendation of the working group, indicating the necessity to find an international partner to implement the solutions abroad. This occurred in accordance with the main objective of work on the model, which is to provide a scheme to monitor the situation of young people in the labour market, and which could become a benchmark for other countries. The cooperation was established with representatives of the German Public Employment Service the Federal Employment Agency Regional Directorate of Berlin-Brandenburg – *Bundesagentur für Arbeit Regionaldirektion Berlin-Branderburg* (BA).

BA is a unit of the public sector providing primarily the services of work administrator and social benefits payer. The actual scope of this rapidly acting unit is much wider and more varied, and its "self-assessment goes far beyond that way of thinking." On the one hand, this institution carries out its tasks in accordance with the legal objectives and tasks on behalf of the Federal Republic of Germany, in close cooperation with the institutions of self-government. On the other hand it active uses its room for maneuver to create its program of activities. In this sense it sees itself as the "enterprise of a public contract".[69]

BA is responsible for the present and future form and design of the German labour market. It is a kind of service provider, covering the fields of work, occupation, vocational training and further education. It helps workers to search the employment and employers to find the employees. It supports people in a temporary phases of their professional life, provides social balance in the market process, helps employees to keep and improve their employment. The services provided by BA contribute to increased gender equality and help to overcome the disadvantages associated with disability.[70]

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[69] *BA 2020 – Active for Employment within a Changing World Development Prospect of the Federal Employment Agency, Position Paper. Final draft,* Nuremberg, October 2012, page 5.

[70] Ibidem, pages 5-6.

The transnational partnership agreement with BA, was signed by the leader of the working group - the Regional Labour Office in Białystok on 18.01.2013r. and it clarified expected results of cooperation as:

- establishment of the working group consisting of representatives of the Polish of regional labour offices and the transnational partner – the Regional Directorate of Berlin-Brandenburg Federal Employment Agency (Germany), in order to develop the model to monitor the situation of young people in the labour market, its adaptation to the partner country and the implementation of the model (meaning the implementation of analysis based on the assumptions of the model) for all Polish regions and regions of Germany selected by the German partner,
- development of model assumptions based on cooperation which primarily uses the workshop forms,
- implementation of the model consisting of the analysis of the situation of young people in the labour market, according to the model assumptions for all Polish regions and regions of Germany (indicated by the partner),
- development and printing of publication containing the description of the model (adopted fields of analysis, indicators accepted for the analysis, clarification of the methods for calculating the indicators).
- The work on the model included:
- determining the fields of activity and the names and definitions of indicators (with identification of definition source), checking the availability of data,
- determining of necessary algorithms for the calculation of indicators,
- determining of data availability for particular territorial units,
- determining of the frequency for publication of indicators,
- determining of age ranges for which the available data are presented,
- determining of publication sources of indicator and interpretative data in the explanatory notes,
- the adaptation of developed model to the German reality (which consists in collecting Polish and German data on the basis of created model and its presentation with the use of a tool called "Arbeitsmarktmonitor").

4.1. Assumptions of the transnational model for monitoring of the situation of young people in the labour market

The work on the model implemented at the transnational level based on the principles developed by the Polish working group. As a preliminary model, used for further cooperation were adopted 6 research areas and 30 indicators for analysis developed by the Polish working group.

It was agreed that Polish-German model will be created and then expanded by using the German tool to monitor the situation in the labour market, known as the ARBEITSMARKTMONITOR (AM). The German side has provided an introduction to AM maps of Polish regions (NUTS level 2 according to *Nomenclature of Units for Territorial Statistics*) - geocoding standard adopted in the European Union for the purpose of identifying territorial units for statistics (European Statistical Office, Eurostat). At the same time, the representatives of the Polish working group provided access to that tool as the internal information system that supports the structure of BA. The partner also assured to take efforts towards the creation of the English version of AM.

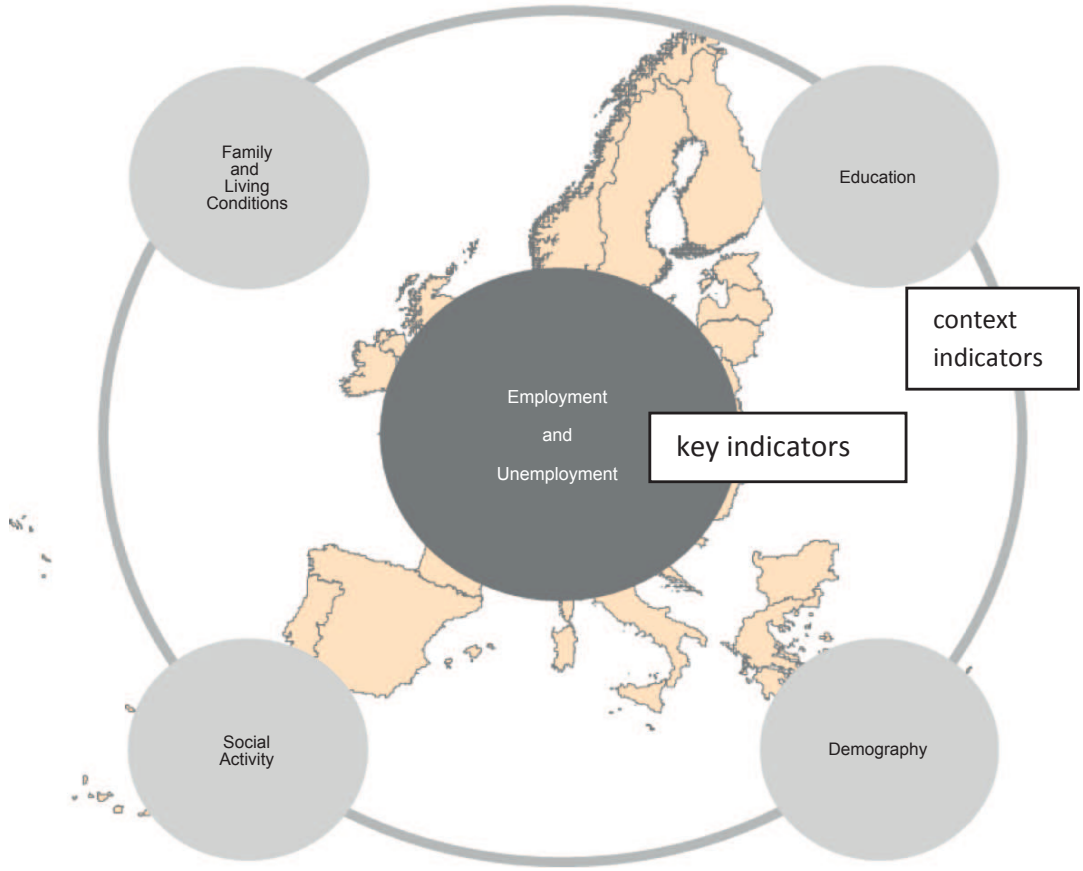
Table 8. Assumptions of the transnational model for monitoring the situation of young people in the labour market

		Description:
Main purpose:		Providing the information about the situation of young people in the labour market allowing to take steps to improve the situation of this group of people.
Monitoring level:		region
Period of analysis:		year
Monitored group:		Young people aged 15-34
Fields of activity covered by monitoring:	key	Unemployment Employment
	context	Demography Education Family and living conditions

Source: own work

The initial assumptions to work on the transnational level were identical to those developed by the Polish working group.

Figure 2. Diagram of the transnational model for monitoring the situation of young people in the labour market



Source: Statistics of the Federal Employment Agency

An important agreement at the international level became the division of the group covered by monitoring into two age categories: 15-24 (so-called younger young people) and 25-34 years (the older young people). In particular fields, arrangements have gone in the direction of exclusion from the model the following indicators:

1) Field **unemployment**

Due to the incomparability of the German and Polish data from the transnational model were excluded the following indicators:

a) fluctuation coefficient for the unemployed aged 18-24 years,
b) share of unemployed persons aged 18-24 according to education level in total number of unemployed people aged 18-24,
c) share of the unemployed aged 18-24 years without previous work experience in the total number of unemployed aged 18-24,
d) share of long-term unemployed aged 18-24 and 25-34 in the total number of unemployed aged 18-24 and 25-34.

In the case of the last indicator it was recommended to accept and monitor it at the national level.

2) Field **employment**

The following indicators have been negated as incomparable:

a) school leavers taking up employment for the first time,
b) school leavers taking up the professional work for the first time - by school type,
c) individuals aged 18-29 engaged in business activities,
d) young people's employment status in the labour market,
e) average gross monthly pay.

4) Field **demography**

In the model was not included fertility rate by age groups.

5) Field **education**

It raised many doubts because of the uncertainty of access to the data. Definitely has been negated the inclusion into the model of the following indicators:

a) School leavers by field of education,
b) vocational examination pass rate (indicator was not accepted due to incomparability of data),
c) educational activity of young people,
d) the structure of education of young people.

In the case of two last indicators, their rejection was associated with doubts arising in the scope of data availability, the need to operationalize the terms and to standardize the sources of data.

6) Field **family and living conditions**

In this case was impossible, due to the unavailability of data, the inclusion into the indicator model:

a) the population in households benefiting from social assistance and concerning the situation of persons with disabilities,
b) household disposable income,
c) households equipped with some durable goods (computer, computer with internet access, printer, car, mobile phone).
d) the number of persons with disabilities.

The last indicator was negated due to definitional differences in the concept of a disabled person, applied at the level of each country.

7) Field **social activity**

Completely were rejected the indicators from the field of social activity, which is the synthetic indicator calculated in the Polish model from the indicators not available in Germany, derived from the Social Diagnosis research.

Finally, as a result the working group formed the following model to monitor the situation of young people in the labour market based on monitoring of **15 indicators. The diagram of the model is presented in the table.**

Table 9. Diagram of the transnational model to monitor the situation of young people in the labour market

Field of analysis	Range of indicators adopted for monitoring
Unemployment	Share of unemployed aged 15-24 and 25-34 in the total number of unemployed (BAEL/LFS)
	Unemployed rate among people aged 15-24 (BAEL/LFS)
	Share of unemployed aged 18-24 and 25-34 (BAEL/LFS), in the total population of this age group
	Relationship between registered unemployment and unemployment by BAEL/LFS[71]
	Share of unemployed aged 18-24 and 25-34 in the total population of unemployed (registered unemployment)
	The number of unemployed people aged 18-24 and 25-34 (registered unemployment)
Employment	Professional activity rate of young people
	Employment rate of young people
Demography	Participation rate of the population by age groups: 15-24, 25-34 in the total population
	Share of population by age groups 15-34, 15-24, 25-34 per 1000 of inhabitants[72]
	„Age tree"[73]
Education	Early leavers from the educational system
	Upper secondary vocational schools
	NEET indicator
Family and living conditions	At-risk- of- poverty rate (after social transfers)

Source: own work

[71] Indicator proposed to include in the model by the Germans.
[72] Indicator proposed to include in the model by the Germans.
[73] Indicator proposed to include in the model by the Germans.

An important issue is the accepted model are factors affecting its shape. It is evident that the assumptions are made on a limited number of indicators in relation to the original model. This situation is primarily due to the diversity of interests of both cooperating partners visible in a great interest to observe the indicators available at the level of given country and not available in the partner's country. The diversity of interests here is closely linked to the availability of data. An important factor influencing the reducing number of indicators monitored at the transnational level is the fact present in many cases of definitional consistency, preventing the comparability of data between these two countries.

The fact of reduction the number of available data at the international level has become an indication for searching the possibility to expand the information resources of the model established by additional indicators. The possibility of statistical modeling for transnational model was also considered, like the modeling carried out in parallel on the data collected in the model developed by the Polish working group. The possible plans for statistical modeling at the transnational level, going beyond the current partnership, were dependent on any future agreements and obtaining funds for the designated purpose.

4.2. The results of implementation of the transnational model to monitor the situation of young people in the labour market on the example of German and Polish regions

The priority in the adaptation of the model to the Polish and German conditions was the creation of a database in MS Excel format, containing the values of the indicators listed in the specified time range. The implementation was carried out on the example of the year 2011, although in the database were also collected the data for 2012.

To visualize collected data the German partner has made available its Internet tool Arbeitsmarktmonitor System (AM (https://arbeitsmarktmonitor.arbeitsagentur.de) in which was created special subpage- "cloud"- for graphical presentation and comparison of values for indicators in a given year between the regions being in the sphere of interest of the model.

For the purposes of communication within the group was created Network (Netzwerk) with a social networking site, allowing the exchange

of information within the group, and uploading in the network various documents related to the ongoing work, as well as the formation of discussion groups. All members of the working group involved in the development of the model at the international level as well as interested persons from outside the group gained access or the possibility to obtain the results of the performed implementation.

The results of implementation like in the expert model developed in the Polish working group, allow for assessment of differences in the values of indicators between regions, in this case, both Polish and German. The implementation was carried out for all regions (NUTS 2) German and Polish. On the map 2 are showed the names of Polish and German regions.

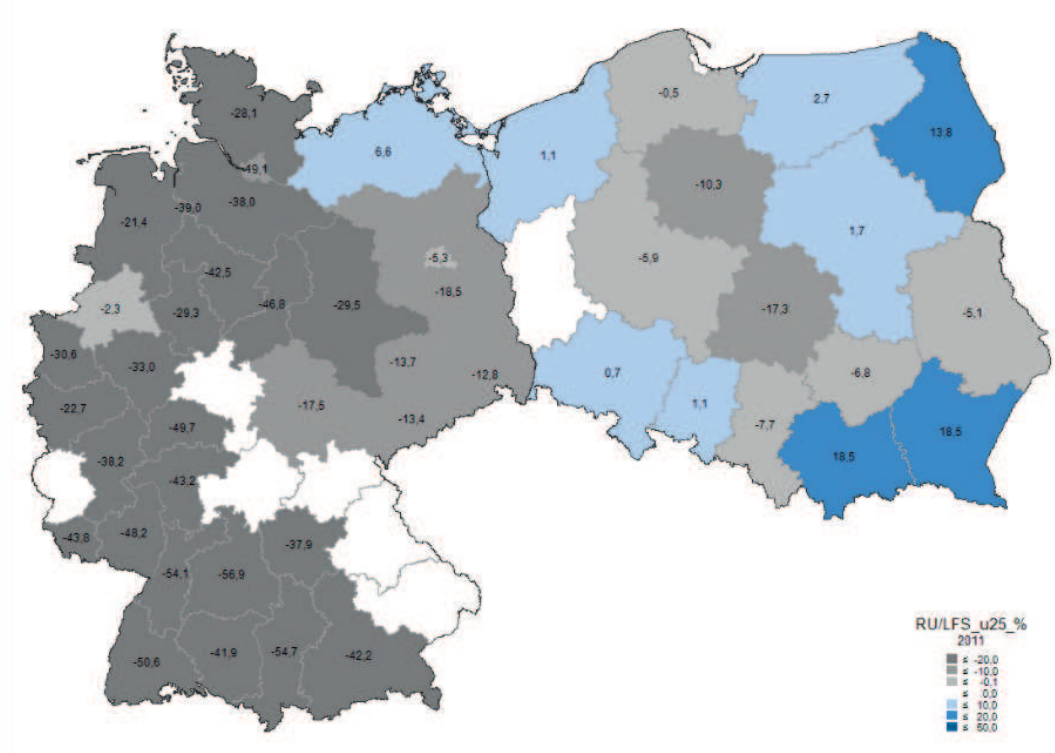
Map 2. Polish and German regions

Source: Statistics of the Federal Employment Agency

The next maps show the results of implementation of indicators included in the model for 2011, characterizing analyzed regions and selected age groups (among three: 15-24, 25-34 and 15-34 years). In this publication were selected six indicators for presentation. Detailed data for all indicators included in the model are available at: https://arbeitsmarktmonitor.arbeitsagentur.de, the possibility to obtain access to data exists after the

notification at the address: Lüdeke Britta Britta.Luedeke2@arbeitsagentur.de (contact language: German, English).

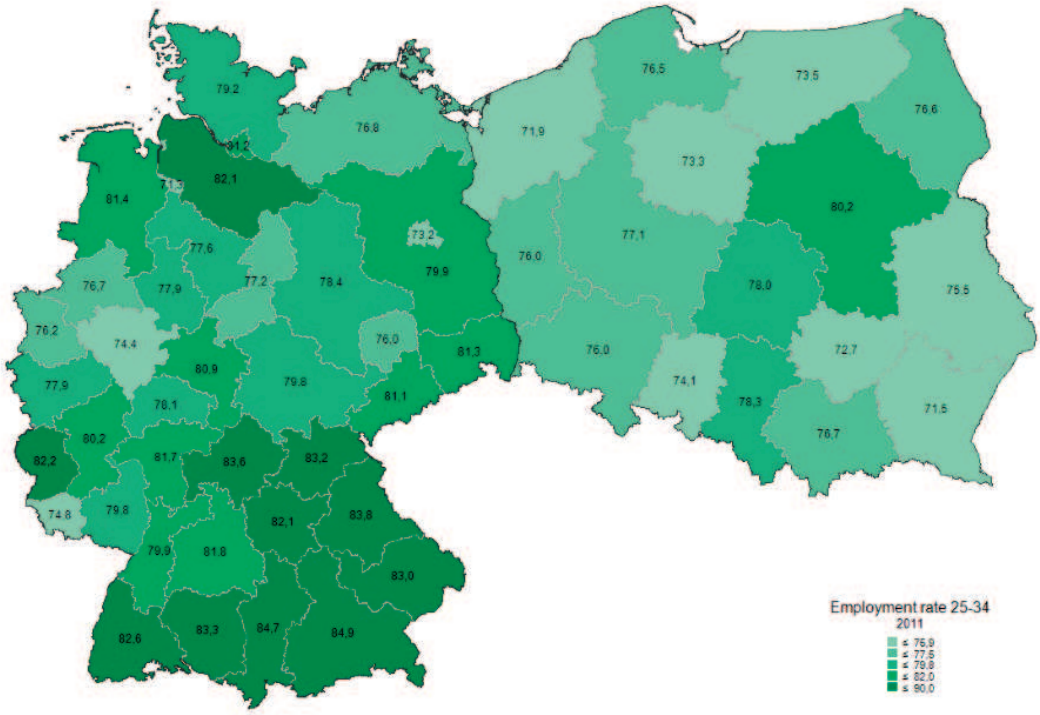
Map 3. The relationship between registered unemployment and unemployment by LFS in 2011



Data source: Eurostat Working: statistics of the Federal Employment Agency

The indicator values: the relationship between registered unemployment and unemployment by LFS concerning the field of **unemployment**, inform about the percentage difference between registered unemployment and unemployment by LFS. The indicator of a negative value informs how the percentage of registered unemployment is lower / higher (- / +) in comparison with LFS unemployment. For example, in Berlin, in the case of unemployed persons aged 15-24 years, the level of registered unemployment is 5.3% lower than the unemployment rate according to LFS (grey: registered unemployment <LFS unemployment; blue: registered unemployment> LFS unemployment.

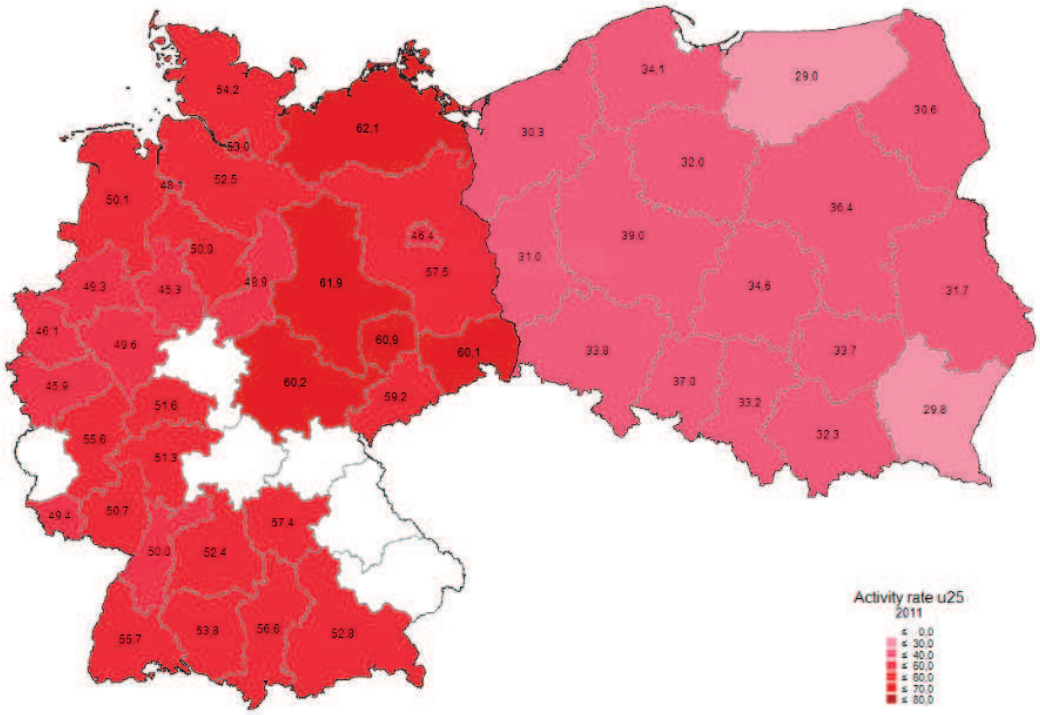
Map 4. The employment rate of people aged 25-34 years according to the LFS in 2011



Data source: Eurostat Working: statistics of the Federal Employment Agency

The comparison of employment rate of young people aged 25-34 years (the area of **employment**) shows significant differences between the figures for this category of people in Poland and Germany. In Poland, only one region can take pride in the value of this ratio exceeding 80%. In Germany, such regions represent more than 47%.

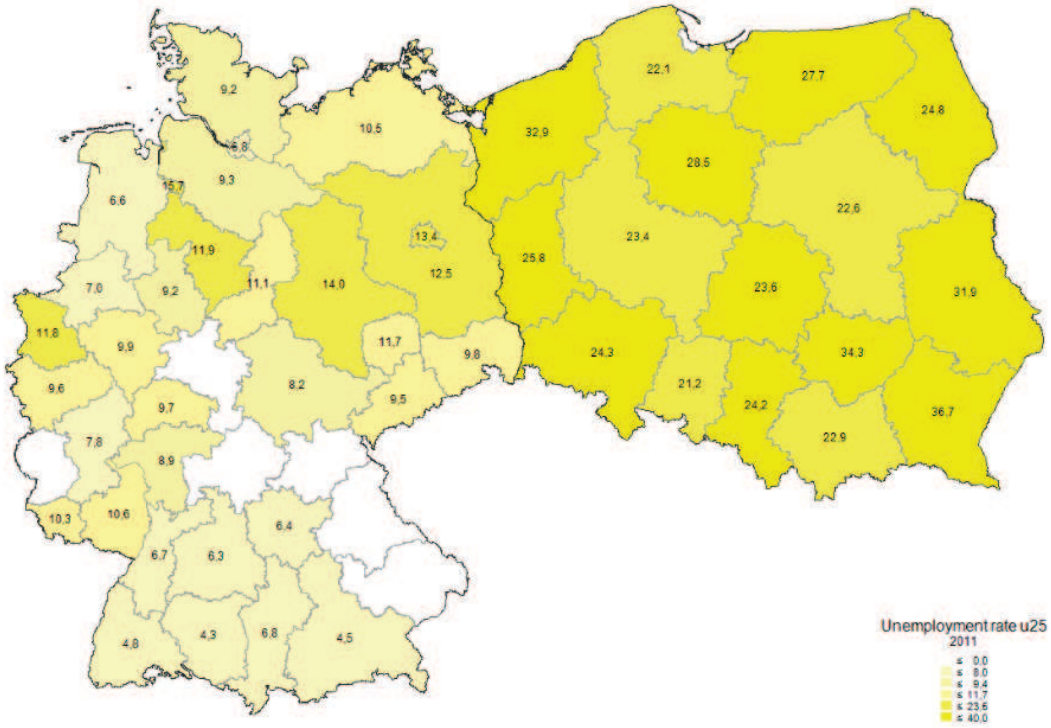
Map 5. Professional activity rate of people aged 15-24 years according to the LFS in 2011



Data source: Eurostat Working: statistics of the Federal Employment Agency

Significant differences in favor of Germany presents the following indicator: professional activity rate of young people aged 15-24, also concerning the area of **employment**. The values of this indicator observed in Poland oscillate between 30%. The lowest value of this indicator in Germany is 45.3% (Detmold).

Map 6. Unemployment rate among young people aged 15-24 years according to the LFS in 2011

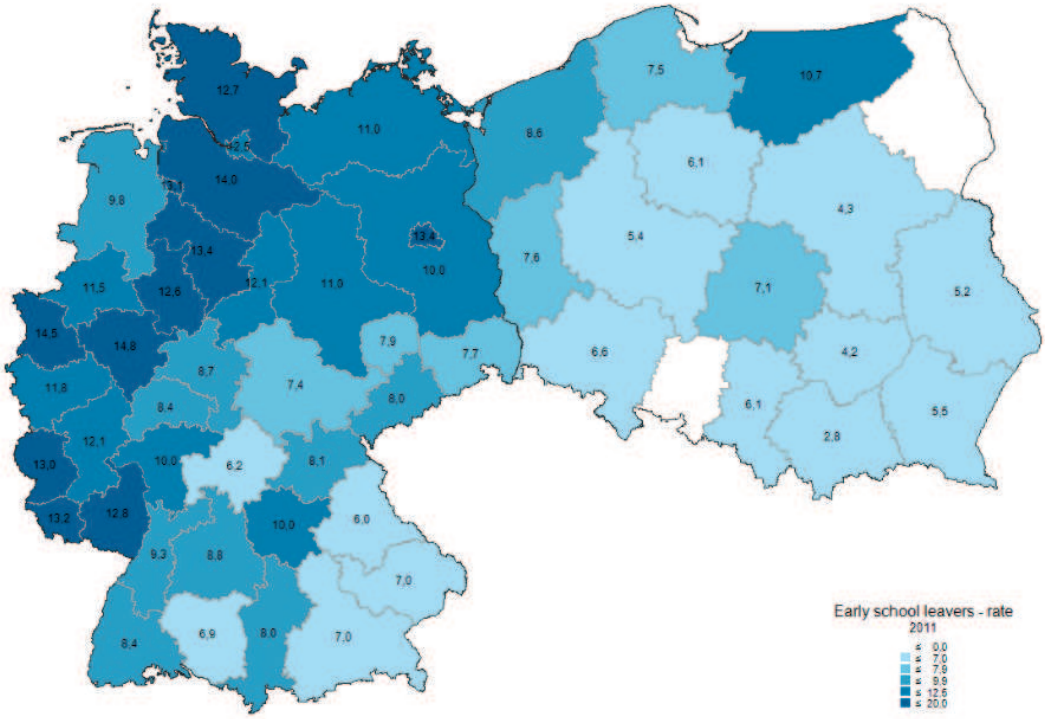


Data source: Eurostat Working: statistics of the Federal Employment Agency

Low rates in the field of youth **employment** in Poland reflect in a high level of unemployment among this category of people. Similarly, the reverse situation is observed in some German regions. Here, the highest unemployment rate in only four regions ranges from 11.8 to 13.4%. High values of employment rate are accompanied by a low value of unemployment indicator. In most other German regions, the level of youth unemployment in the 15-24 age group does not exceed 10%. Thus, the highest level of youth unemployment in the 15-24 age group in Germany (13.4% in Berlin) is more than twice lower than the highest recorded in Poland (36.7% in the Podkarpackie Region).

Despite the far worse indicators in the scope of employment and unemployment among young people, occurring in Polish regions in comparison with the German regions, Poland has a better situation than German with regard to early leaving the system of education by young people.

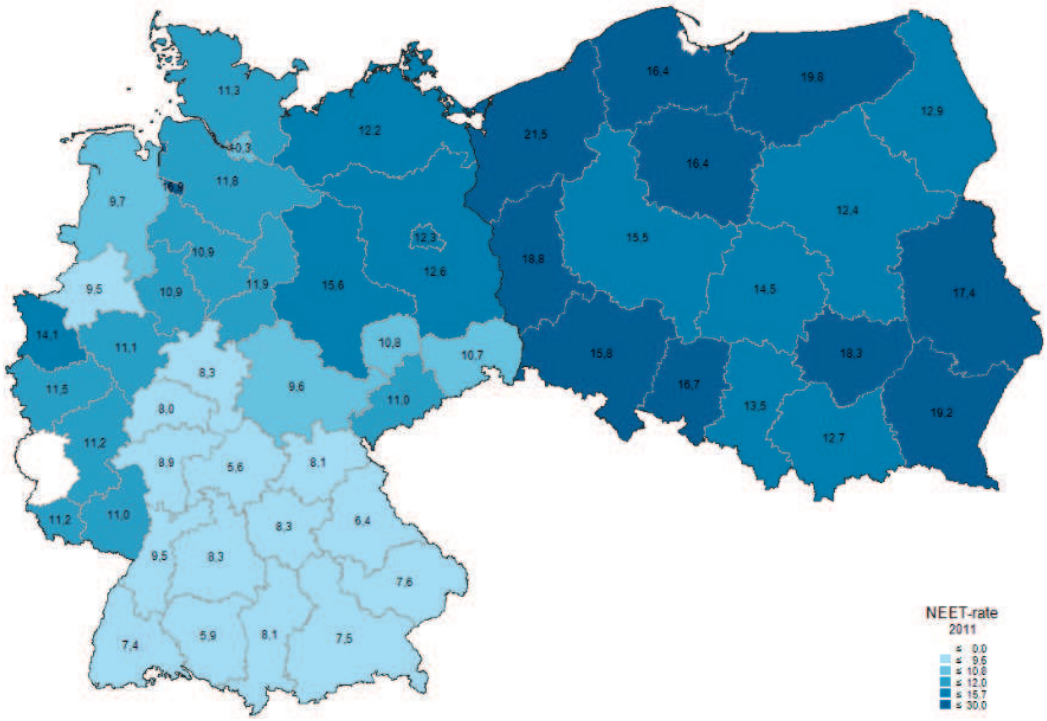
Map 7. Early leavers from education according to LFS in 2011



Data source: Eurostat Working: statistics of the Federal Employment Agency

The highest value of this ratio observed in Poland (10.7 in the region of Warmia and Mazury) is 4.1 percentage points lower than the highest value recorded in Germany (14.8 in Amsberg). In Germany 19, i.e. half of the regions has the value of this index ≥ 10.

Map 8. NEET[74] (not in employment, education or training) according to LFS in 2011



Data source: Eurostat Working: statistics of the Federal Employment Agency

The last presented rate, concerning not in education, employment or training - NEET, has higher values in Polish than in German regions. In Polish regions the problem of passivity in the educational, professional and training sphere is a problem in all regions, especially the north regions (the highest value of this indicator in the Zachodniopomorskie Region is more than 20). The lowest value of NEET in Poland reaches a value of 12.4 in the Mazowieckie Region. In Germany, the NEET indicator value higher than 12 concerns only five regions (Düsseldorf, Sachsen-Anhalt, Berlin, Brandenburg, Mecklenburg-Vorpommern)

[74] Eng. „NEET - not in employment, education or training".

4.3. Conclusions and recommendations resulting from the work carried out on the construction of the transnational model to monitor the situation of young people in the labour market

The transnational model was created on the basis of 15 indicators characterizing the situation of young people in five areas of activity. The field of professional activity could not be included into the model. The reason was the lack of available and reliable statistics for both Poland and Germany.

In further work on the transnational model the working group composed of representatives of Polish and German institutions recommended searching for opportunities which could expand the information resources of this model and include additional indicators.

Also was indicated the importance to attempt at the field of statistical modeling, the modeling pattern carried out in the works in Poland. The priority, however in this case is to obtain adequate funding.

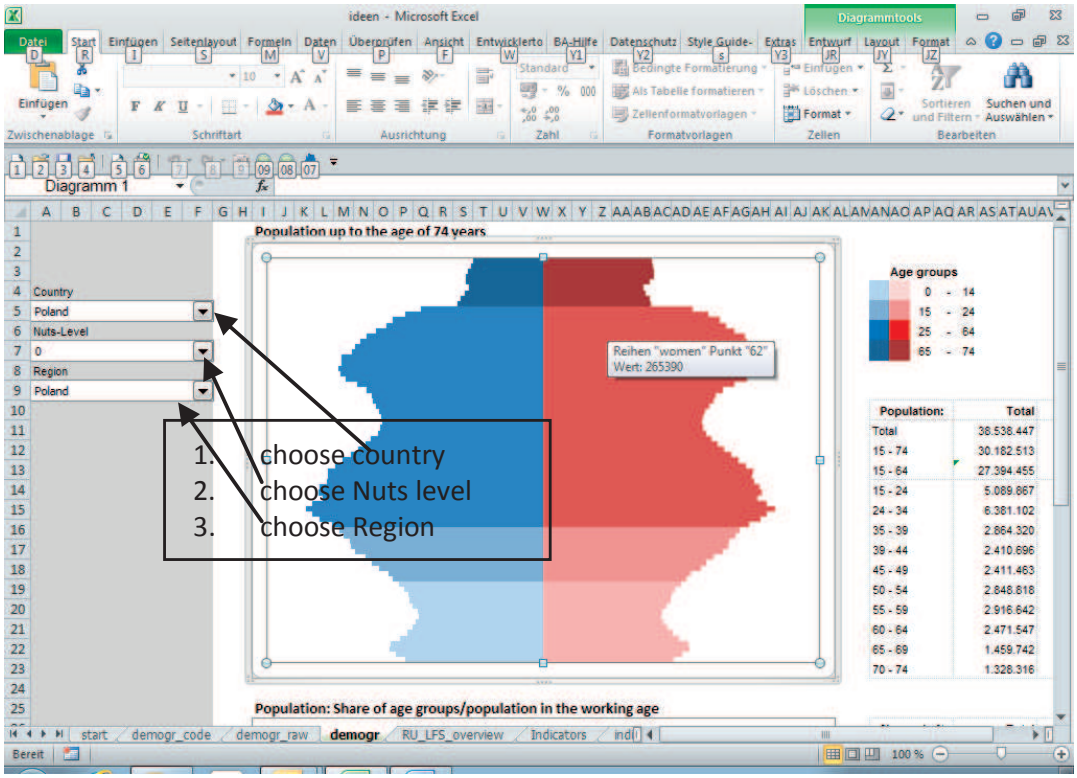
The international group has created a solid basis for further development and establishment of international cooperation in the field of monitoring the situation of young people in the labour market. In the range of indicators included in the model were used the data for the years 2011 and 2012.

The added value of the model is:

- determination of fields and range of indicators in specific areas, from the viewpoint of youth monitoring,
- obtaining statistical data in the scope included in the model in one place,
- allowing interested parties to access the data and giving the possibility to visualize them with the use of IT tools,
- **collection of statistical data in the model database concerning not only Poland and Germany but also the EU-27**.

The last of the identified work effects of the international group is the result of high activity on the German side in obtaining data from EUROSTAT and involving them into the model database. The IT tool for the purposes of model service provided by Germans allows for the acquisition and visualization of data concerning the youth in age categories 15-24, 25-34 and 15-34 in the range of the whole European Community.

Figure 3. Exemplary visualization possible to carry out on data collected in the transnational model available in Arbeitsmarktmonitor (example- field of demography and the „age tree")



Population:	Total
Total	38.538.447
15 - 74	30.182.513
15 - 64	27.394.455
15 - 24	5.089.867
24 - 34	6.381.102
35 - 39	2.884.320
39 - 44	2.410.696
45 - 49	2.411.463
50 - 54	2.848.818
55 - 59	2.916.642
60 - 64	2.471.547
65 - 69	1.459.742
70 - 74	1.328.316

Data source: Eurostat Working: statistics of the Federal Employment Agency

The obtained possibility is an important step towards the dissemination of the opportunity to use the databases created by a wide group of institutions from all countries of the Community. It is the first very important step in the development of the European system for monitoring and comparing the situation of young people in the labour market not only at the country level but also in the **region**.

5. Soft model of monitoring the situation of young people in the labour market

The experiences in statistical modeling and weaknesses of the expert and the statistical model became the basis for further exploration of solutions towards mathematical reasoning for the selection of indicators to analyze the situation of young people in the labour market, the impact assessment of particular areas on the situation of young people in the labour market and expanding the opportunities for creation of synthetic indicators enabling the comparison the young people's situation between the regions.

The soft modeling method adopted in the next stage of work was closely connected with the mathematical possibility of this method to evaluate the impact of particular fields on the situation of young people in the labour market. The adopted method allowed to avoid a difficult justification of importance for expert assessment concerning the impact of given context area on the situation of young people.

The soft modeling process was preceded by the adoption by the group significant changes in the model assumptions, resulting from its experience, a wide consultation with experts invited to the workshops and constant desire to seek the information relevant for the monitoring of youth situation in the labour market which also is easily accessible.

5.1. Assumptions for soft model to monitor the situation of young people in the labour market

The most important changes in the model assumptions to monitor the situation of young people in the labour market concern:

- **the** combination of unemployment and employment areas in one area: **the situation in the labour market,**
- the inclusion of **economy** in the context area,
- the observation in three age categories: 15-24, 25-34 and 15-34 years.

Table 10. Assumptions for soft model to monitor the situation of young people in the labour market

		Description :
Main purpose:		Providing information about the situation of young people in the labour market allowing to take steps to improve the situation of this group of people.
Monitoring level:		region
Period of analysis:		year
Monitored group:		Young people aged: – 15-24 years – 25-34 years – 15-34 years
Fields of activity covered by monitoring:	key	The situation of young people in the labour market (employment and unemployment)
	context	Economy Demography Education Family and living conditions Social activity

Source: own work

The change in approach to observed age categories of young people contributed thereby to the construction of three separate models to monitor the situation of young people in the labour market. The final indicators adopted for the construction of models have been preceded by statistical analysis of the indicators used in the earlier stages of work on model and other not previously analyzed, available statistical data. At the level of soft modeling attempts, again was discussed the need to include the monitoring indicators characterizing the migration of young people. To the field of **demography** was included the migration indicator for permanent residence. Again to the analyzes in the area of **employment** was included the employment rate of young people, calculated by oneself on the basis of Eurostat[75] data, as a percentage of employed persons aged 15-24, 25-34 and 15-34 years, in relation to the number of people in a given age group. The indicators included in the modeling process are presented in Table 11.

[75] http://epp.eurostat.ec.europa.eu

Table 11. The indicators included in the soft modeling process

No	Field	Name of indicator
1	Employment	Employment rate of young people
2		Average monthly gross salary in total
3	Unemployment	Share of unemployed young people in the total number of unemployed (unemployment registered as at December 31)
4		Unemployment rate of young people (LFS)
5		Share of long-term unemployed young people at the same age (registered unemployment)
6	Demography	Total population growth calculated as the ratio of number of live births to deaths
7		Number of live births by age of mother per thousand inhabitants
8		Migration balance determined as the number of registrations in relation to the number of de-registrations
9		Demographic dependency ratio calculated as the number of young people per 100 people at retirement age
10	Education	Early leavers from educational system
11		Vocational examination passing rate
12		Matriculation examination passing rate
13		University graduates, stationary studies, per 10000 inhabitants
14	Family and living conditions	Average monthly disposable income per person in the household
15		Risk of poverty after social transfers
16		Proportion of people in households benefiting from the environmental social welfare in the total population
17	Social activity	Participation in voluntary activities of young people in the total number of the respondents in this age group
18		Membership in organizations of young people in the total number of the respondents in this age group
19		Participation in religious services and meetings of young people in the total number of respondents in this age group
20		Participation in the activities aimed at the local community of people aged 25-34 years in the total number of respondents in this age group
21		Participation in the last election of people aged 25-34 years in the total number of the respondents in this age group

No	Field	Name of indicator
22	Economy	Gross domestic product per inhabitant
23		Entrepreneurship rate, calculated as the number of business entities per 10 000 inhabitants
24		Capital expenditure per inhabitant
25		Production structure (section participation[76] A in WDB)
26		Production structure (participation of section, group B, C, D and E in WDB)
27		Production structure (section participation F in WDB)
28		Production structure (participation of section, group G, H, I, J in WDB)
29		Production structure (participation of section group K, L in WDB)
30		Production structure (participation of section, group M, N, O, P, Q, R, S, T in WDB)

Source: D. Perło, *Budowa wskaźnika syntetycznego sytuacji młodzieży na rynku pracy w Polsce w oparciu o metodologię modelowania miękkiego,* Regional Labour Office in Białystok, Białystok 2014, enclosure: database.

The indicators were analyzed in three age groups: 15-34 years, 15-24 years and 25-34, but in addition, in the absence of statistical data, were taken into consideration the specific indicators without age limitation.

Three soft models of situation of young people in the labour market were created in tested age groups based on the methodology of soft modeling. All three soft models were specified by acceptance of the same assumptions. According to theoretical basis of soft modeling, each such model consists of two parts: the internal model and external model. The internal model shows the relationship between studied areas, in particular the impact of respective context areas on key area. The external model informs about the impact of detailed indicators on specific areas defined on their basis.[77]

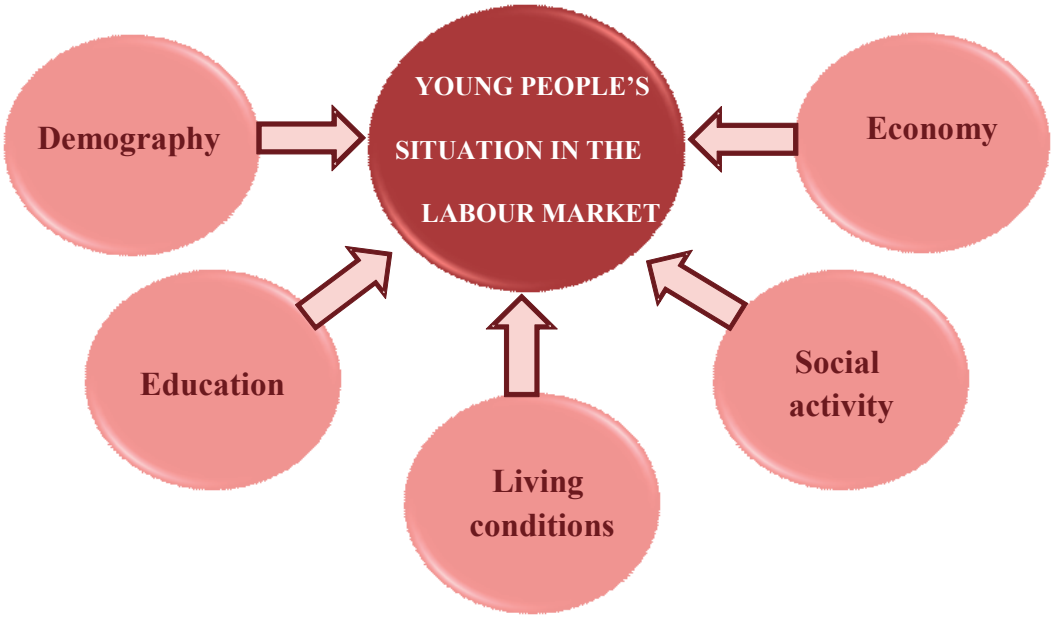
The internal model shown in Figure 4 shows the relationship between the particular fields. It allows, therefore, to estimate the impact of

[76] Sections of the economy according to the Polish Classification Activities (PKD 2007), adopted by the Resolution of 24 December 2007 (Journal of Laws 2007 no 251, item 1885 with later amendments).

[77] D. Perło, *Budowa wskaźnika syntetycznego sytuacji młodzieży na rynku pracy w Polsce w oparciu o metodologię modelowania miękkiego,* Provincial Labour Office in Białystok, Białystok 2014, page 2.

particular areas on the situation of young people in the labour market. On the basis of the internal model it was found which of fields: economy, demography, family and living conditions, social activity, and education have the greatest impact on the situation of young people in the labour market. In addition, the synthetic indicators in all fields have become a result of the soft model construction for the situation of young people in the labour market.[78]

Figure 4. Soft model scheme of young people's situation in the labour market



Source: D. Perło, *Budowa wskaźnika syntetycznego sytuacji młodzieży na rynku pracy w Polsce w oparciu o metodologię modelowania miękkiego,* Regional Labour Office in Białystok, Białystok 2014, page 26.

The construction of external model consisted of defining the respective research fields with the use of selected detailed indicators. On the basis of particular indicators in each field were constructed three synthetic indicators based on the non-model method according to the synthetic characteristic (measurement by Perkal). The results of synthetic indicators were used to describe the hidden variables.

„In contrast to taxonomic methods, soft modeling is subject to substantive and statistical verification. All indicators are therefore additionally checked. This means that all above mentioned variables are verified positively, both substantially and statistically. In addition, in the soft model

[78] Ibidem, page 26.

aren't made *a priori* characteristics of variables, specifying stimulants, destimulants or nominants. Such information is obtained at the stage of model estimation. This is a big advantage of this method, but on the other hand only after the verification stage, it is concluded which of the detailed indicators define the individual areas of research. Thus, the final list consists only of twenty variables, not of thirty that were subject to an initial analysis."[79]

5.2. The results of soft model estimation and verification with respect to the situation of young people (age group 15-34 years)

During the estimation of soft models for the situation of young people in the labour market are adopted specified methodological assumptions that have an impact on the definition of immeasurable (hidden) variables and the interpretation of results. „In the created model was assumed that the hidden variable is primary in relation to its indicator what means that it must be defined at the beginning and then determned which detailed indicators (indicators) will describe it. So it was in this case. At the beginning were defined the following areas: key and context field (i.e. hidden variables), and later were selected detailed indicators (indicators) that describe them. The so called deductive approach was accepted where detailed indicators are defined as reflective. It means that the interpretation of the results should focus on the estimated factor loadings, not weights. The factor loadings are the correlation coefficients between detailed indicator and hidden variable. They take the value from interval <-1, 1>. They inform about the strength and direction of correlational relationship. When the hidden variable is defined by the single indicator, the factor loadings are equal 1."[80]

The soft model results of young people's situation (aged 15-34 years) in the labour market show that in the area of **demography (DEM)** the big-

[79] D. Perło, *Budowa wskaźnika syntetycznego sytuacji młodzieży na rynku pracy w Polsce w oparciu o metodologię modelowania miękkiego,* Regional Labour Office in Białystok, Białystok 2014, page 30-31. The final list of variables used for the estimation and verification of the models was marked with orange colour in the table 11.

[80] D. Perło, *Budowa wskaźnika syntetycznego sytuacji młodzieży na rynku pracy w Polsce w oparciu o metodologię modelowania miękkiego,* Regional Labour Office in Białystok, Białystok 2014, page 32.

gest and also positive influence on this variable *has migration balance* rate (0.9924). The weak but also positive correlational relationship is it with a hidden variable DEM. It means that the growth of these indicators affects the increasing of the demographic potential of regions. The second area is **economy**, which all the selected indicators affect positively and strongly. The biggest impact on the level of economic development in the region *has gross domestic product*.[81]

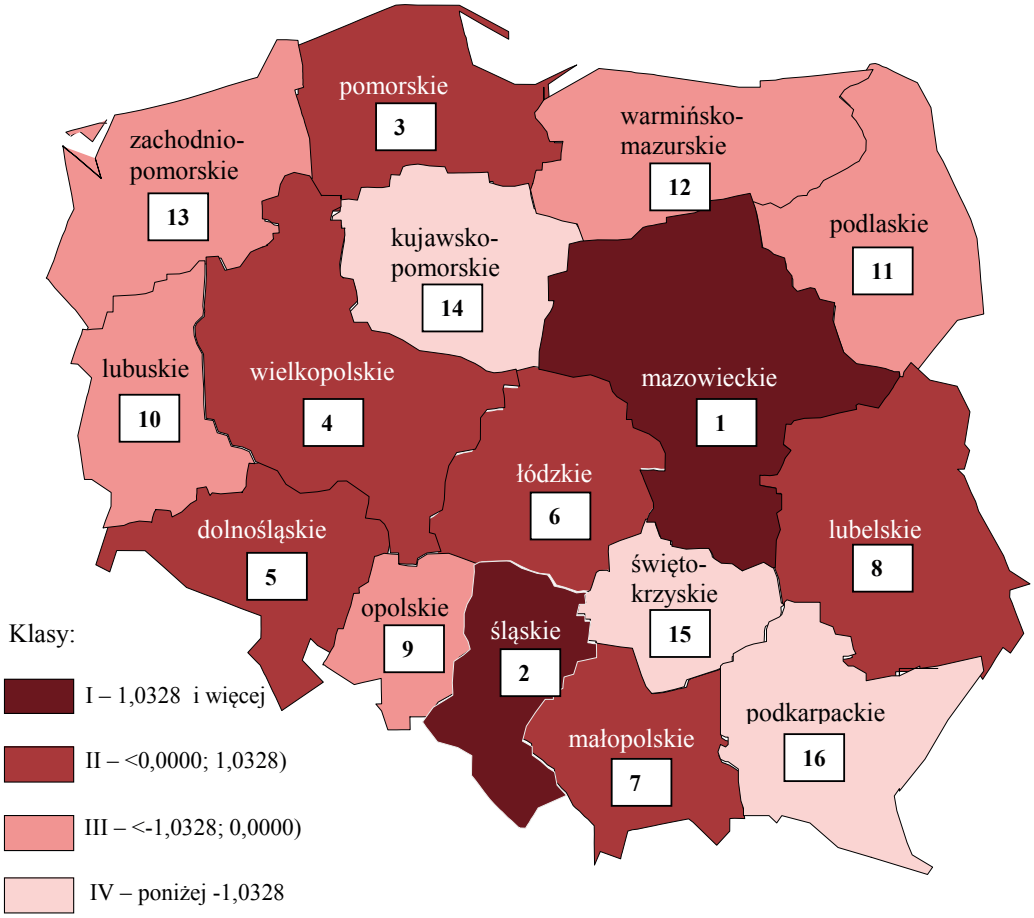
The estimates of internal model parameters of the situation of young people (aged 15-34 years) in the labour market show the influence of context areas on the key area, which is **the situation of young people in the labour market (employment and unemployment)**. The biggest impact on the situation of young people (aged 15-34 years) in the labour market has **the economic development of the region**. It means that in order to improve the situation of young people in the labuor market should be supported the instruments dynamizing the economic development of the regions. The next field highly affecting is **education**, followed by **family and living conditions**. It can be concluded that without no impact on the situation of young people in the labour market remain two fields: **demography and social activity**. These variables are with a value close to zero or negative. It means that they have a negative reference to the employment and unemployment of young people in the labour market. It seems quite logical, because the growth of the population aged 15-34 causes the increase of competition in the market for jobs what negatively affects the situation of young people in the labour market. Moreover, as show the survey results, the largest social activity of the youth is visible in the regions where the situation of this group of people in the labour market is the worst.[82]

The biggest impact on the situation of young people aged 15-34 in the labour market has the economic development of the region. The higher the level of economic development, the better the situation of young people in the regional labour market.

As a result of the internal model estimations were obtained estimates of hidden variables (the values of synthetic indicators). They were used to organize the regions. The following maps present the division of regions into the classes in respect of values of synthetic indicators received in all context areas.

[81] Ibidem, page 32.
[82] Ibidem, page 33 and 37.

Map 9. The division of regions into classes with respect to the situation of young people (aged 15-34 years) in the labour market in 2011



Source: D. Perło, *Budowa wskaźnika syntetycznego sytuacji młodzieży na rynku pracy w Polsce w oparciu o metodologię modelowania miękkiego,* Regional Labour Office in Białystok, Białystok 2014, page 34.

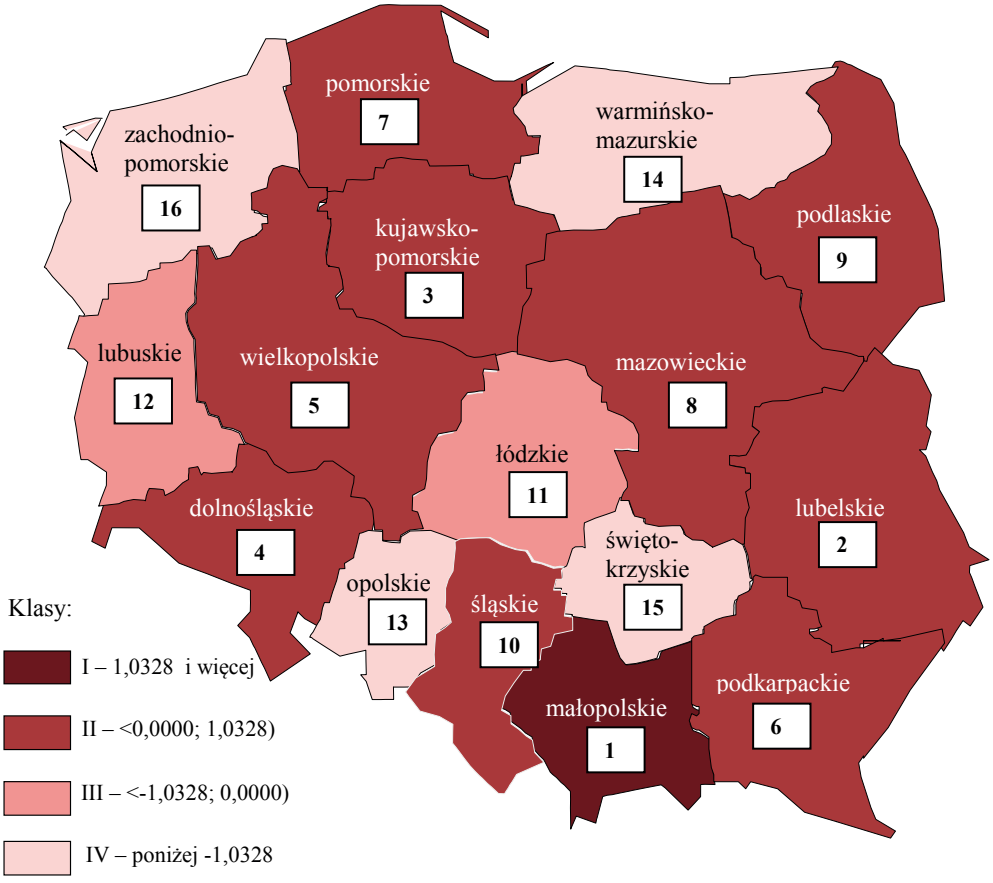
„The best situation for young people aged 15-34 in the labour market occurs in two regions: Mazowieckie and Śląskie. These regions form the first class with regard to the situation of the youth in the labour market. They are the regions having leading positions in the country in respect of the level of regional development (Mazowieckie – 1. place, Śląskie – 3.) and living conditions (Mazowieckie– 1. place, Śląskie – 3. place). The second class form regions where the situation of young people in the labour market is more favorable than the national average. These are the regions: Pomorskie, Wielkopolskie, Dolnośląskie, Łódzkie, Małopolskie and Lubelskie. Most of these regions are also characterized by a higher than average level of economic development (except the regions: Lubelskie and Małopolskie), living conditions (except Lubelskie) and education (except Łódzkie).

In the third and fourth class are the regions where the situation of young people in the labour market is the most difficult. These are:

- in the third class: Opolskie, Lubuskie, Podlaskie, Warmia and Mazury and Zachodniopomorskie;
- in the fourth class: Kujawsko-Pomorskie, Świętokrzyskie and Podkarpackie.

These regions require specific support for more dynamic economic growth, systematic monitoring of the situation of young people in the labour market, as well as the study of specific indicators in a dynamic perspective."[83]

Map 10. The division of regions into classes in respect of context area: education in 2011

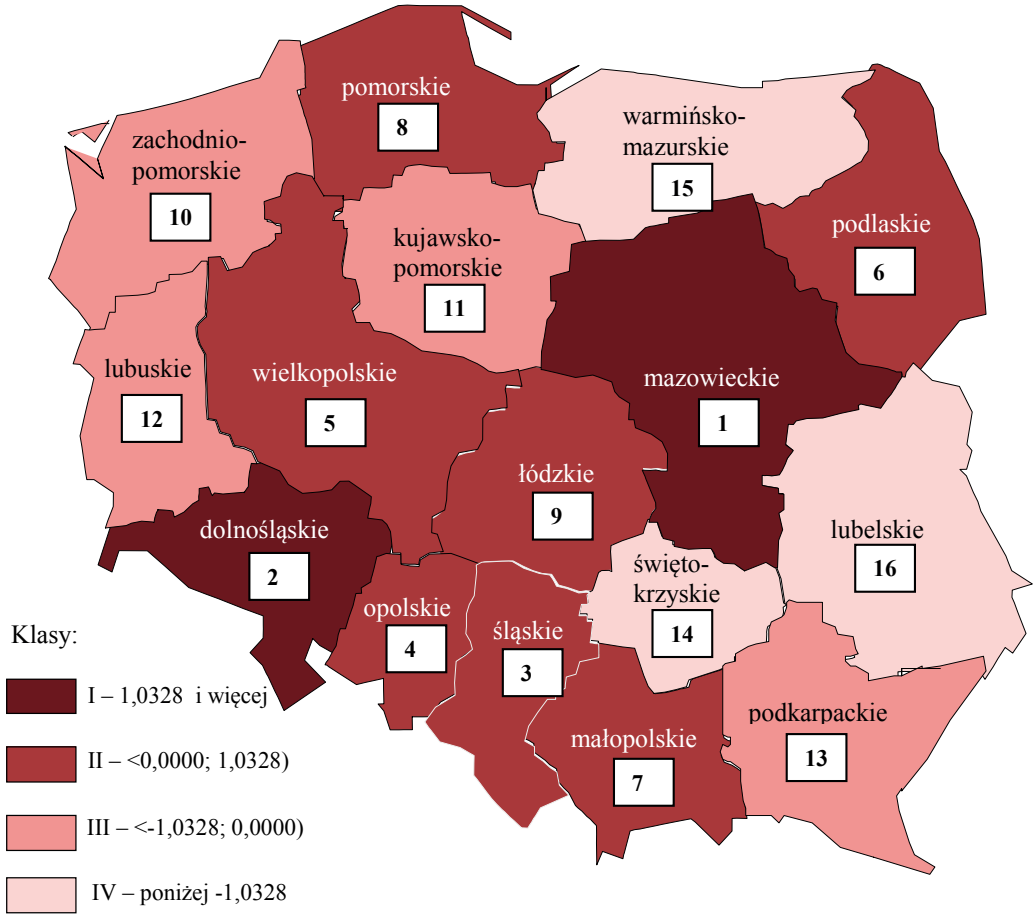


Source: D. Perło, *Budowa wskaźnika syntetycznego sytuacji młodzieży na rynku pracy w Polsce w oparciu o metodologię modelowania miękkiego,* Regional Labour Office in Białystok, Białystok 2014, page 34.

[83] D. Perło, *Budowa wskaźnika syntetycznego sytuacji młodzieży na rynku pracy w Polsce w oparciu o metodologię modelowania miękkiego,* Regional Labour Office in Białystok, Białystok 2014, page 37.

Education is another context field influencing to a large extent the situation of young people in the labour market. So this is the field that should be monitored and developed, because it has indirect and significant impact on improving the situation of young people aged 15-34 in the labour market.[84]

Map 11. The division of regions into classes in respect of context area: family and living conditions in 2011



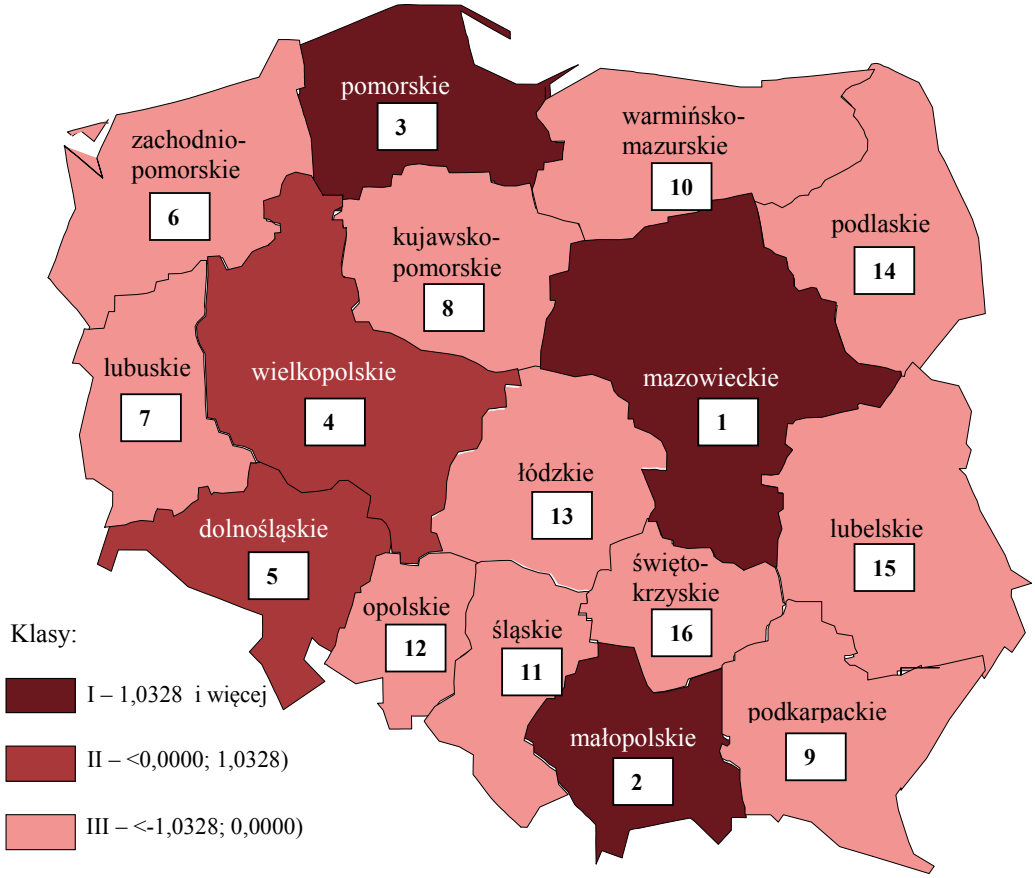
Source: D. Perło, *Budowa wskaźnika syntetycznego sytuacji młodzieży na rynku pracy w Polsce w oparciu o metodologię modelowania miękkiego,* Regional Labour Office in Białystok, Białystok 2014, page 35.

Family and living conditions have proven to be the third important context field influencing to a large extent the situation of young people in the labour market. Also this area should be monitored and developed

[84] Ibidem, page 37.

because of its impact on the situation of young people aged 15-34 in the labour market.[85]

Map 12. The division of regions into classes in respect of context area: demography in 2011



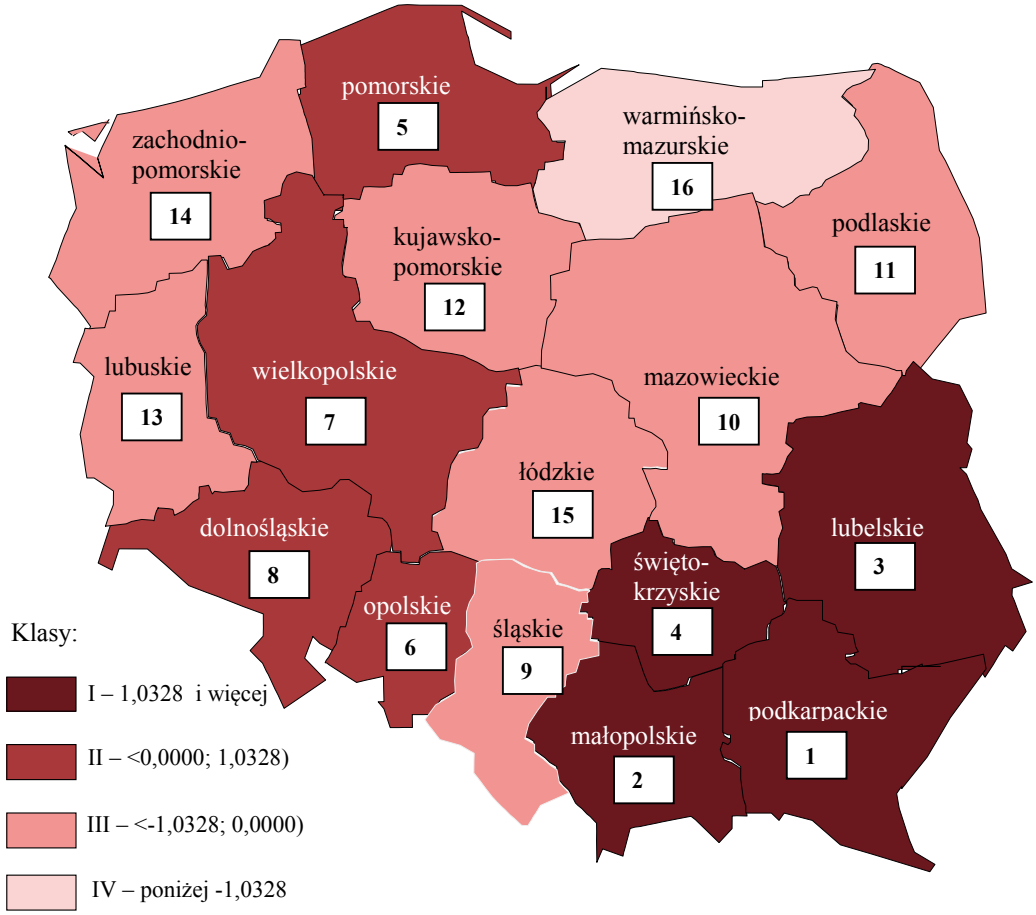
Source: D. Perło, *Budowa wskaźnika syntetycznego sytuacji młodzieży na rynku pracy w Polsce w oparciu o metodologię modelowania miękkiego,* Regional Labour Office in Białystok, Białystok 2014, page 34.

In the case of **demography**, into the first class were included three regions: Mazowieckie, Małopolskie and Pomorskie, in the second class are two regions: Wielkopolskie and Dolnośląskie and the remaining regions were classified with regard to the value of the indicator to the third group. It should be noted that the impact of this area on the situation of young people in the labour market has proved to be small but negative. In the case of demography it is compatible with assumptions. A larger number of young people means greater competition for existing jobs. On the other

[85] Ibidem, page 37.

hand, employers have a greater choice. Therefore, the increase in the number of young people causes an increase in competition, which worsens the situation of young people in the labour market.[86]

Map 13. The division of regions into classes in respect of context area: social activity in 2011



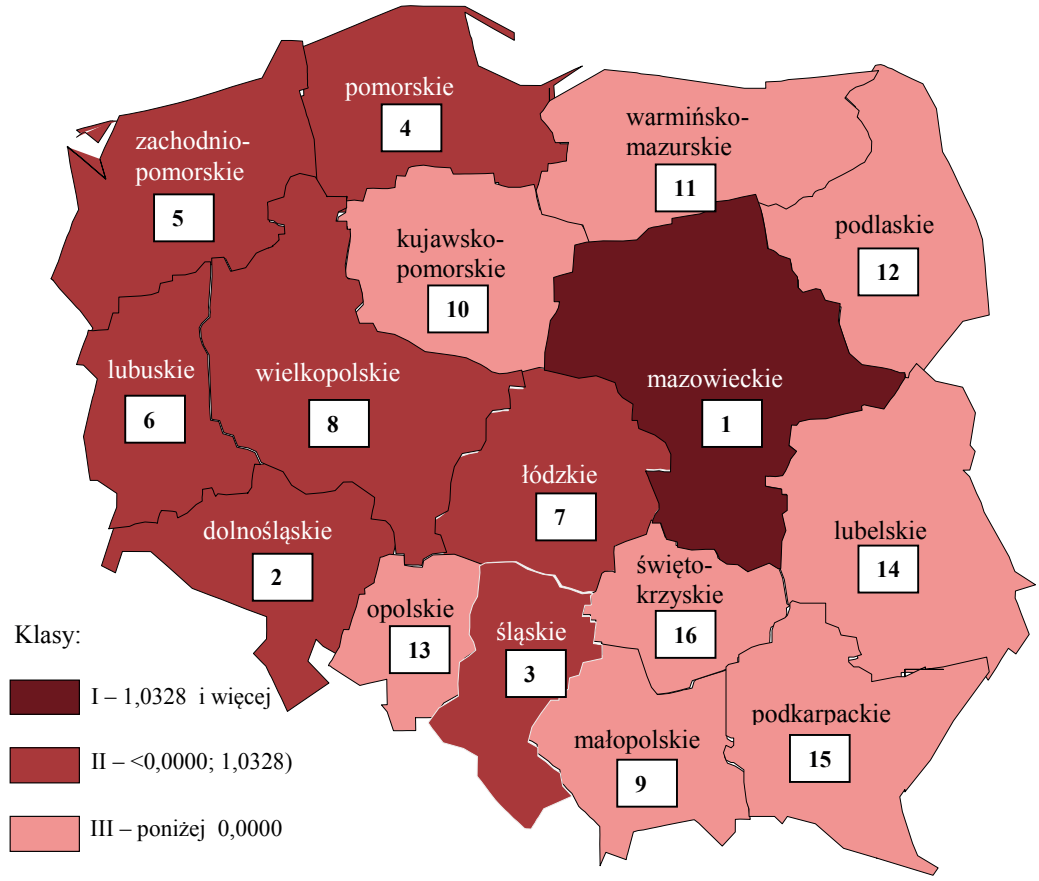
Source: D. Perło, *Budowa wskaźnika syntetycznego sytuacji młodzieży na rynku pracy w Polsce w oparciu o metodologię modelowania miękkiego,* Regional Labour Office in Białystok, Białystok 2014, page 35.

In the field of **social activity** on the best position were the following regions: Lubelskie, Podkarpackie, Świętokrzyskie and Małopolskie. In the case of this area surprising was its negative impact on the situation of young people in the regional labour market. From theoretical analysis resulted that young people more active socially, should easier find themselves in the labour market. The opposite situation can be derived from a different cause and effect relationship. In the case of unfavorable situation of young

[86] Ibidem, page 37.

people in the labour market, lack of jobs, young people may be more active in searching for other places, where they could realize themselves. The way to find them can be social activity, the type of volunteer activity for the local community, or more frequent participation in religious services and meetings. Therefore, the higher level of social activity may characterize the youth from regions with a worse situation in the labour market.[87]

Map 14. The division of regions into classes in respect of context area: economy in 2011



Source: Own study based on the results of the soft model of situation of young people (aged 15-34 years) in the labour market

In relation to the area concerning economy, the most favorable conditions for professional self –realization of young people had the Region of Mazowieckie. The second class includes seven Polish west regions, in the third class are eight other regions of Central and Eastern Poland.

[87] Ibidem, page 37.

The maps present the same division of provinces into four classes. They were divided according to the scheme: **Class I: regions with the best situation** (hidden variable values equal or higher than the mean plus standard deviation); **Class II: regions with the average situation** (hidden variable values lower than the mean plus deviation, and higher or equal to the average); **Class III regions with the worse situation than average** (hidden variable values lower than average, and greater than or equal to the mean minus standard deviation); **Class IV: regions with the worst situation** (hidden variable values lower than the mean minus standard deviation). In the case of fields: economy and demography there are no such regions, where the synthetic indicator value (hidden variable) would be lower than average: minus the standard deviation (because in these areas there are only three classes).[88]

A similar modeling process was carried out in groups of young people 15-24 and 25-34. In the first group (young people aged 15-24 years) the greatest impact on the situation of young people had the field of **family and living conditions**. The better living conditions, the more favorable the youth situation in the regional labour market. It means that in order to improve the situation of young people in the labour market should be supported the instruments affecting the standard of living of young people. On the second place in this case was the area concerning **economy**, and the third was **education**. These are also such areas that should be monitored and developed, because they have indirect and significant impact on improving the situation of the youngest persons aged 15-24 in the labour market. In the soft model built for this group of people the effects of two other context areas - **demography and social activity** - were also, as in the case of the first model, small and negative.[89]

In the case of young people aged 25-34 years, the biggest impact on their situation in the labour market has economic development. The higher the level of economic development, the better the situation of young people in the regional labour market. It means that in order to improve the situation of young people in the labour market should be supported the instruments affecting the economic development of regions. The second position in respect of influence, has in this case education, the third family and living conditions. These are also the areas which should be monitored

[88] Ibidem, pages 33-34.
[89] Ibidem, page 42.

and developed, because they indirectly have a significant impact on the improving the situation of young people aged 25-34 in the labour market. Also in this case, the impact of context fields - **demography and social activity** - is also, as in the case of two previous models, small and negative.[90]

5.3. Conclusions and recommendations resulting from the work carried out with the use of soft modeling

The processes of soft model construction for monitoring the situation of young people in the labour market have shown significant factors determining the situation of young people in different age categories. Also was obtained the information which context areas should be further analyzed, and which could have a marginal impact and may be omitted in monitoring the situation of young people in the labour market. The information resulted in additional process, intended to establish statistical significance / insignificance of fields concerning **demography** and **social activity** and possible confirmation of the need to eliminate them from further research. Therefore, the modified soft models were built to monitor the situation of young people in the labour market.[91]

The conclusions from modified models have proven to be the same as in previous models. It means that the omission in the analysis two context fields: **demography and social activity,** does not affect the cognitive quality of models and their importance from the point of view concerning the monitoring of young people's situation in the labour market.[92]

It has been also important to monitor three separate age groups: 15-24 years, 25-34 years and 15-34 years, because they lead to further conclusions. They also show the differences in the impact of studied context areas on the key area in analyzed age groups.[93]

In addition, the work at this stage of modeling the situation of young people in the labour market has led to the conclusion about the necessity of two pronged approach in monitoring the situation of young people in the labour market. It is expressed on the one hand in the need to monitor the indicators used then to build the models based on soft modeling, on

[90] Ibidem, page 47.
[91] Ibidem, page 50.
[92] Ibidem, pages 50-51.
[93] Ibidem, page 51.

the other hand in monitoring the range of indicators in a dynamic perspective allowing the observation of changes in the values of other indicators, having additional informative value for monitoring the situation of young people in the labour market. To monitor the components in a dynamic perspective were qualified indicators not included into the construction of synthetic indicators, marked with grey in Table 11 and the following indicators:

- taking up professional work for the first time – school leavers by type of school,
- fluctuation coefficient for the unemployed aged 18-24 (registered unemployment),
- share of unemployed persons aged 18-24 by education level in the unemployed aged 18-24 years (registered unemployment),
- share of the unemployed aged 18-24 years with no work experience in the unemployed aged 18-24 years (registered unemployment),
- population (total, women, men, town, village) by age groups: 15-24, 25-34, 15-34)
- partial fertility rate by age groups,
- number of students in vocational schools,
- graduates by fields of study.

A detailed report from the work on the construction of soft models to monitor the situation of young people in the labour market is an annex to this publication.

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Information about the experts working on the MODEL FOR THE MONITORING OF YOUNG PEOPLE'S SITUATION IN THE LABOUR MARKET:

Members of Polish working group

1. **Edyta Dąbrowska** – Regional Labour Office in Białystok
2. **Marta Sosnowska** - Regional Labour Office in Białystok
3. **Krystyna Lewandowska** - Regional Labour Office in Gdańsk
4. **Katarzyna Antończak** - Regional Labour Office in Kraków
5. **Weronika Dąbrowska** - Regional Labour Office in Poznań
6. **Marcelina Tomczyk** - Regional Labour Office in Poznań
7. **Robert Chrząstek** - Regional Labour Office in Rzeszów
8. **Marcin Dygoń** - Regional Labour Office in Rzeszów
9. **Paweł Nowak** - Regional Labour Office in Szczecin
10. **Marta Mróz** - Regional Labour Office in Szczecin
11. **Katarzyna Kozakowska** - Regional Labour Office in Warszawa
12. **Iwona Trzcińska** - Regional Labour Office in Warszawa

The authors of statistical analysis based on the metodology of standarized sums:

1. Monika Wałaszek – Statistical Office in Kraków
2. Beata Osiewalska – Statistical Office in Kraków

The author of statistical analysis based on the metodology of soft modeling:

Dr. Dorota Perło – Białystok University– Faculty of Economics and Management