

DEVELOPMENT PATHS OF EUROPEAN UNION COUNTRIES IN THE LIGHT OF SELECTED SUSTAINABLE DEVELOPMENT PRIORITIES

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Abstract

Sustainable development is a multidimensional phenomenon, focused on the continuous process of adapting and reacting to regional conditions and signals coming from the society and environment in order to ensure long-term development and an appropriate level of life quality for residents. It covers the process of changes, in which the positive driving force, allowing structural transformations takes the form of the achievements of science and knowledge in all areas of life, including the production patterns, governance, coexistence, management and others. The purpose of the study is to assess both the level of development and changes of selected phenomena perceived as sustainable priorities, with particular emphasis on the those formulated on the international (global) forum (the Agenda 2030 Transforming Our World, UN 2015). The analyses aim at defining development paths of the 28 EU Member States in the period 2000-2017, with particular emphasis on Central and Eastern European (CEE) countries. The obtain results suggest that while in terms of employment and labour market structure improvement, related to new technologies and knowledge-based economy, certain successes were recorded, in the case of poverty and income inequalities the situation deterioration is still observed in many EU countries.

Key words: sustainable development, employment, innovation, poverty, EU countries

JEL Code: P4, O33, C3

Introduction

The sustainable development (SD) is an interdisciplinary phenomenon combining social and environmental processes into one mechanism through the management model. Its implementation will take a different form at the level of the entire economy, region and city (village). As Zacher (2011) emphasizes “the more entities follow the path of developmental sustainability, the better for all stakeholders – great regions, the planet and the entire humanity”. The implementation of sustainable development idea forces economy to take such development paths which, apart from traditional factors, take into account knowledge and information as well as entrepreneurship and the ability to apply modern technologies (Górka, Łuszczuk, 2014), (Dokurno, Fiedor, Scheuer 2016), which is reflected e.g. in an extensive presence of

information technology industries in social and economic life as well as large share of high technology industry (high-tech) and the so-called advanced industries in industry sector sales value and also access to information and care for the protection of natural environment.

The purpose of the article is to assess the situation of the EU countries in the area of selected sustainable development problems. The analysis covers 28 EU countries in 2017, taking into account the changes recorded in comparison to 2000 or 2008. The social dimension of sustainable development will be highlighted, as it refers to such issues as: poverty, employment, support for innovation, reducing inequalities. These issues were included within the framework of 3 out of 17 goals listed in 2030 Agenda¹: Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all, Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation, Goal 10. Reduce inequality within and among countries.

1 Research problem characteristics and procedure

Employment represents the source of income and realising individual aspirations. The nature and pattern of economic growth matters for employment creation and poverty reduction (Georgescu, Herman 2019). Development consistent with the ideas of sustainable development should support the creation of jobs, which guarantee labour and social security resulting from the amount of received remuneration. In particular, the emphasis is on creating productive employment as a driving force for inclusive and sustainable development. These factors directly support preventing poverty and improving the living conditions of the population. Unemployment, in particular the long-term one, low wages and large disproportions in the distribution of wealth constitute developmental barriers resulting, e.g. from the labour market malfunctions and cause poverty, primarily the income related one which refers to the (lack of) financial resources available to individuals for meeting their needs, with the latter being defined in relation to an “ordinary” or “minimum living pattern” in the society where they live (Fusco et al., 2011). As Georgescu, Herman (2019) states *in the EU countries during the period of 2007–2016, inclusive development was negatively influenced by working poverty (as a deficit in productive employment), and that vulnerable employment and precarious employment were important drivers for a high level of working poverty.*

¹ The United Nations (UN) Agenda 2030 for Sustainable Development Transforming Our World, effective from 2015, is the current document of a global scale, which emphasizes the significance of the world’s urgent problems affecting the famine and poor and, at the same time, puts emphasis on the contemporary development problems by introducing the global society onto the path of sustainable development.

In addition, it is important to ensure that the defined directions of economic development strengthen these industry sectors based on knowledge and innovations. Knowledge and innovations represent factors which provide opportunities to improve the labour market situation and to carry out the remaining sustainable development goals. According the findings obtained by (Bianchinia, Pellegrino, 2019) on the basis of a data set of Spanish companies observed for more than 20 years, the particular attention should be given to persistence in product innovation, which matters more for employment (the persistence in process innovation does not play any relevant role).

The selected measures, proposed by Eurostat within the framework of goals 8, 9 and 10 were used in the presented analysis to assess the situation on the SD-axis employment – opportunities and threats related to the labour market – poverty (*ER-SDMo-SDMt-POV*) in 28EU countries, primarily referring to employment, decent work, labour market structure linked to innovation, reducing inequalities and eradicating poverty (Tab. 1).

Tab. 1: SD-axis indicators employment - opportunities and threats related to the labour market - poverty

| | |
|---|---|
| EMPLOYMENT (ER) | |
| Employment rate % of population aged 20 to 64 (ER) | |
| Opportunities of labour market (SDMo) | Threats of labour market (SDMt) |
| Employment in high- and medium-high technology manufacturing sectors % of total employment (<i>HTM</i>) | Long-term unemployment rate % of active population (<i>LU</i>) |
| Employment in knowledge-intensive services % of total employment (<i>KIS</i>) | In work at-risk-of-poverty rate % of employed persons aged 18 or over (<i>WP</i>) |
| R&D personnel % of active population (<i>RD</i>) | Income distribution Quintile share ratio (<i>ID</i>) |
| POVERTY (POV) | |
| People at risk of income poverty after social transfers % (<i>POV</i>) | |

Source: Author's compilation.

The characteristics of the EU member states, in terms of the phenomena forming the axis employment – opportunities and threats related to the labour market – poverty was prepared by assessing the position of a given country against the background of others (ranking) in the period 2000-2017 and determining the path of development between 2008 and 2017. The shortening of the development paths' analysis results from the availability of comparable data. The indicators reflecting employment in HTM as well as KIS are available only for the years 2008-2017.

The development path of the country was determined by indicating the direction of changes in the areas along the axis employment – opportunities and threats related to the labour market – poverty. In the case of “employment” and “poverty”, the assessment of changes was performed based on individual measures, whereas for “opportunities and threats related to the labour market” the synthetic development measures (SDM) were used, which allowed the

construction of measures based on three component variables. The following procedure of defining development paths was adopted:

- 1) normalisation of variables (*ER*, *HTM*, *KIS*, *RD*, *LU*, *WP*, *ID*, *POV* – see tab. 1) using zero unitarization method based on the minimum value and the range taking into account all values from the analysed period ($t = 2000, 2008, 2017$). After applying zero unitarization method, the range of variability intervals is aligned and each variable takes values in $[0,1]$ interval (Kukuła, 1999);
- 2) transforming destimulants into stimulants (which referred to the following variables: *LU*, *WP*, *ID*, *POV*), so that values closer to 1 reflected a more favourable situation;
- 3) constructing *SDM* as the weighted sum of variables after unitarization (for $t = 2008, 2017$):

$$SDM_o = 0,3HTM + 0,3KIS + 0,3RD \quad (1)$$

$$SDM_t = 0,3LU + 0,3WP + 0,3ID \quad (2)$$

Higher *SDM* values reflect a more favourable situation;

- 4) identifying *SDM* changes (difference) in 2017 against 2008;
- 5) assigning a country to a given development path defined by positive (improvement) or negative (downturn) changes in each of the four areas (*ER-SDM_o-SDM_t-POV*).

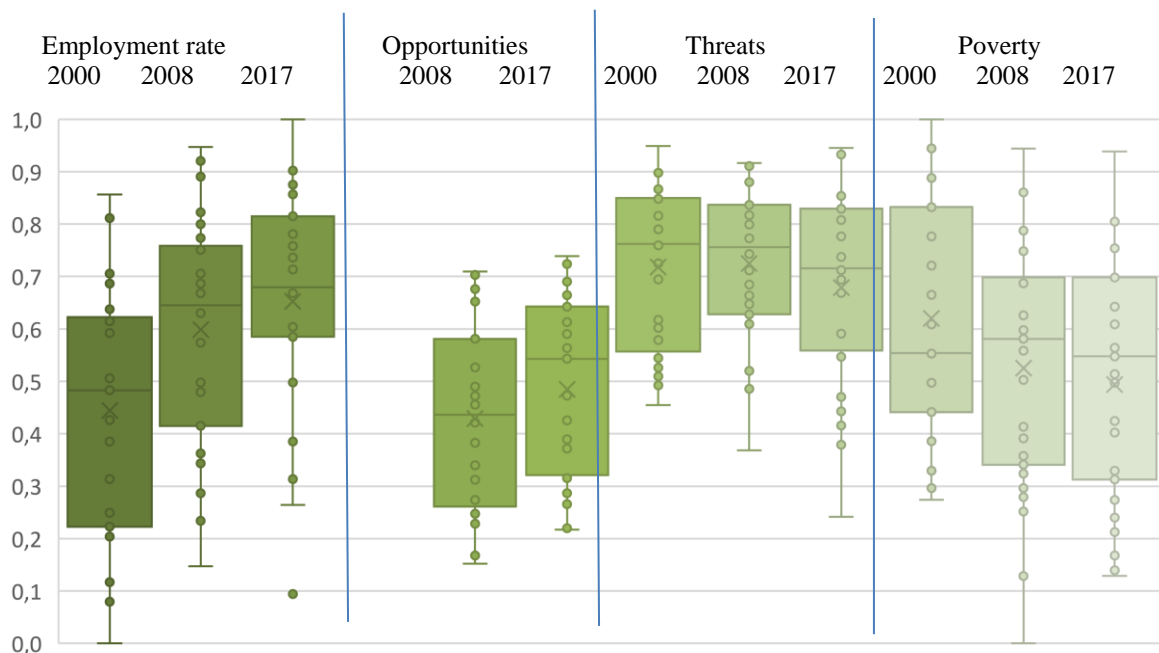
2 The situation assessment of the EU countries on the axis employment - opportunities and threats related to the labour market – poverty

2.1 Changes in the period 2000-2017

The years 2000-2017 represent the period characterised by numerous changes occurring in many EU countries, including the accession into the EU structures, carrying out reforms, the time of global crisis along with the dynamic development of technology. Among the positive trends in this period, the improvement of employment rate indicators was observed. Their evident increase was recorded in 10 countries (over 10% of the indicator value) and in the other 18 they remained at a similar level (the changes did not exceed 10% of the indicator value)² (see Tab. 2 and Fig. 1.). The highest growth in employment rate values was recorded for 8 out of 11 countries of the CEE and also for Malta and Germany. As a result, the employment rate for 28 EU countries increased from the level of approximately 67% in 2001 to over 72% in 2017.

² A change in the indicator value reflects either a growth or a decline exceeding 10% of its initial value, the changes lower than 10% of the initial indicator value mean “no change of the situation”.

Fig. 1: Distribution of the SD-axis indicators (*ER*) – (*SDMo*) – (*SDMt*) – (*Pov*) among 28 EU countries in the years 2000-2008-2017 (all variables as stimulants)



Source: Author's compilation.

In addition to employment growth, positive signs of higher employment in the knowledge-intensive sectors were also recorded. In the EU scale it resulted in an ongoing employment increase in the KIS from 37% in 2008 to 40% of total employment in 2017. Positive changes were also observed in the cross-section of individual countries. In 18 of them in 2017, the employment in KIS increased, in 9 remained at a similar level, and only in one country (Luxemburg) dropped (from 54,2% to 48,5%).

At the same time, the employment in high- and medium-high technology manufacturing (HTM) sectors dropped to approximately 5,5% (from the level of 5,8% in 2008) as a result of the financial crisis, whereas, in the subsequent years it went up to 5,9% in 2017. This indicator showed, however, strong variations among individual countries, from the value close to 1% in Luxemburg, Greece, Latvia, to about 10%-11% in the Czech Republic, Germany, Slovenia, Slovakia and Hungary. The employment in HTM sector is also characterised by more extensive fluctuations over time. A decline of employment in HTM was recorded in the analysed period after the 2008-2009 financial crisis. Finally, at the end of the analysed period (2017) against the reference period (2008), the share of employment in HTM sector was lower in 9 countries, including only one from the CEE (Latvia), and higher in 5 countries (Romania, Austria, Hungary, the Czech Republic, Portugal).

Tab. 2: Position of the country and changes in the value of indicator in the SD-axis in 2017

| Specification | Employment rate ^a | Opportunities for labour market development | | | Threats for labour market | | | People at risk of income poverty after social transfers ^a |
|---------------|------------------------------|---|--------------------------------|----------------------------|--|--|----------------------------------|--|
| | | employment in HTM ^b | employment in KIS ^b | R&D personnel ^a | long-term unemployment rate ^a | in work at-risk-of-poverty rate ^c | income distribution ^a | |
| DK | 7 | 10 | 5 | 1 | 4 ↓ | 5 ↓ | 7 ↓ | 3 ↓ |
| FI | 11 | 11 ↓ | 8 (+) | 3 | 13 (+) | 1 (+) | 3 | 2 |
| SE | 1 | 14 ↓ | 1 | 5 | 3 ↓ | 11 ↓ | 9 ↓ | 13 ↓ |
| AT | 9 | 7 (+) | 12 (+) | 4 | 9 ↓ | 13 | 9 ↓ | 9 ↓ |
| NL | 6 | 23 | 9 | 8 | 10 ↓ | 8 | 6 | 5 ↓ |
| DE | 2 (+) | 3 | 11 | 7 | 6 (+) | 18 ↓ | 13 ↓ | 15 ↓ |
| BE | 24 | 15 ↓ | 3 | 6 | 20 | 3 (+) | 5 (+) | 14 ↓ |
| IE | 15 | 12 | 10 (+) | 12 | 16 ↓ | 4 (+) | 14 | 11 (+) |
| UK | 5 | 20 ↓ | 2 | 13 | 2 (+) | 17 ↓ | 19 | 17 (+) |
| FR | 20* | 12 ↓ | 7 | 9 nd | 21 ↓ | 12 ↓ | 12 | 6 (+) |
| MT | 15 (+) | 20 ↓ | 6 (+) | 24 | 6 (+) | 6 ↓ | 8 | 16 ↓ |
| LU | 17 | 28 ↓ | 4 ↓ | 2 | 13 ↓ | 27 ↓ | 17 ↓ | 19 ↓ |
| PT | 12 | 22 (+) | 18 (+) | 15 | 22 ↓ | 23 (+) | 21 (+) | 18 (+) |
| CY | 22 | 27 | 12 (+) | 28 | 22 ↓ | 14 ↓ | 14 | 12 |
| IT | 27 | 6 | 21 | 14 | 26 | 24 ↓ | 22 ↓ | 22 ↓ |
| ES | 25 | 16 | 16 (+) | 17 | 27 ↓ | 26 ↓ | 26 ↓ | 24 ↓ |
| EL | 28 | 26 ↓ | 15 (+) | 16 | 28 ↓ | 25 | 23 | 21 |
| CZ | 4 (+) | 1 (+) | 25 (+) | 11 | 1 (+) | 2 | 1 | 1 ↓ |
| SI | 12 | 3 | 17 (+) | 10 | 17 (+) | 10 ↓ | 1 | 6 ↓ |
| HU | 14 (+) | 3 (+) | 20 | 19 | 8 (+) | 22 ↓ | 9 ↓ | 8 ↓ |
| SK | 19 (+) | 2 | 23 (+) | 23 | 25 (+) | 9 (+) | 3 (+) | 3 |
| PL | 21 (+) | 7 | 26 (+) | 20 | 5 (+) | 20 (+) | 14 | 10 |
| EE | 3 (+) | 17 | 18 (+) | 18 | 10 (+) | 19 | 19 (+) | 23 ↓ |
| LV | 10 (+) | 25 ↓ | 14 (+) | 26 | 18 (+) | 16 | 24 ↓ | 25 ↓ |
| HR | 26 | 19 | 22 (+) | 25 | 24 (+) | 7 (+) | 17 | 20 |
| LT | 8 (+) | 24 | 24 (+) | 21 | 15 (+) | 15 (+) | 27 ↓ | 26 ↓ |
| RO | 23 | 7 (+) | 28 (+) | 27 | 12 (+) | 28 | 25 ↓ | 28 ↓ |
| BG | 18 (+) | 17 | 27 (+) | 22 | 19 (+) | 20 ↓ | 28 ↓ | 27 ↓ |
| W | 14,5 | 16 | 9,4 | 10,8 | 14,6 | 13,9 | 13,4 | 13,4 |
| CEE | 14,4 | 11,4 | 22,2 | 20,2 | 14 | 15,3 | 15,3 | 16,1 |

^a changes against 2000; ^b changes against 2008; ^c changes against 2003. *Metropolitan area of France. nd no available data for 2000. (+) the situation improvement; ↓ - deterioration of situation; W – average position of 17 Western European countries; CEE – average position of 11 Central and Eastern European countries.

Source: Author's compilation.

In the period 2000-2017 as many as 24 out of 28 EU countries strengthened their research and development potential measured by the share of R&D personnel. Their share in the EU28 in 2017 was 1,28% of active population. Only 3 countries among the leaders of the first 10 countries featuring high R&D personnel share did not record any major changes of the situation (Finland, Sweden and Luxemburg). In the case of France, the absence of data for the period 2000-2013 makes it impossible to formulate conclusions about the changes over time.

To sum up, in terms of employment and the labour market based on knowledge sectors and the development of R&D personnel in the years 2000/2008-2017, positive changes prevailed and were primarily visible in the countries of Central and Eastern Europe (CEE). In the last analysed year, the average position of CEE countries in terms of employment (ER) was

similar to the other countries (named W) (W=69%, CEE=64%). In the case of labour market development in HTM, the situation was better in the CEE countries (W=4,1%, CEE=6,3%), whereas knowledge-intensive services (W=43%, CEE=33%) and R&D resources (W=1,4%, CEE=0,8%) – represent the strength of the Western EU countries. While in the area of both labour market structure and employment many countries show a visible improvement, in the case of labour market threats and poverty, the deterioration of indicators is observed.

Long-term unemployment rate (the share of the economically active population aged 15 to 74 unemployed for 12 months or more) in 2017 compared against the beginning of the period (2000) increased in 11 countries from the first group (W), whereas in four countries from this group and in all CEE countries a declining tendency, confirming the situation improvement, was recorded. As a result, in 2014 the average level of long-term unemployment rate in the Central and Eastern European countries was lower than in the other Western European countries included in W group (2000: W=2,8%; CEE=6,3%; 2017: W=3,8%; CEE=2,8%).

In the EU as a whole, the situation in terms of remuneration levels and disproportions was showing a downward trend for years. In the case of in work at-risk-of-poverty rate % of the employed aged 18 or over (WP) the situation was deteriorating faster in the Western European Countries. The improvement (decrease in the indicator value) was recorded in 4 Western and 4 CEE countries, while the unfavourable situation (increase in the indicator value) in 10 Western and 3 CEE countries. In 2017 the WP indicator reached the average level of 8,3% in the Western European countries and slightly more – 8,7% in CEE countries. At the end of the analysed period the most difficult situation (indicator value above 12%) was recorded in Romania, Luxemburg, Italy, Greece and Spain. It should be emphasized that Luxemburg is the EU country characterised by the highest level of GDP per capita and adjusted gross disposable income of households per capita, which in 2017 was 32 681 purchasing power standard (PPS) per inhabitant in LU and for the 28EU Member States it was only 22 151 PPS per inhabitant. Simultaneously, Luxemburg reached the highest indicator value of WP = 17% defined as the share of employed population with equivalised disposable income below the risk-of-poverty threshold, set at 60% of the national median equivalised disposable income (after social transfers), which indicates a very difficult situation of many households. However, if the analysis of poverty level in LU is carried out based on material deprivation rate, which is defined as the percentage of population with an enforced lack of at least three out of nine material deprivation items in the “economic strain and durables” dimension, then the assessment will be significantly improved and the poverty rate will be as low as 4,4% (the second best score in the 28EU) at the 28EU average amounting to 14,5%.

The difficult situation on the labour market was additionally aggravated by the growing disproportions in the remuneration level. In 2017 the income distribution indicator (ID), which is calculated as the ratio of total income received by 20% of the population with the highest income (the top quintile) to that received by 20% of the population with the lowest income (the bottom quintile), reached the level of 5,1 in the entire EU, while in the Western European countries it equalled 4,8% and in the CEE countries – 5,3% (in 2000: W=4,4; CEE=4,5). The remuneration disproportions were reduced in four countries only (Belgium, Portugal, Slovakia and Estonia).

The unfavourable situation on the labour market related to remuneration level (WP and ID indicators) was primarily reflected in the level of poverty (POV). The EU indicator of at-risk-of-poverty rate is calculated with a threshold set at 60% of the national household equivalised median income. The highest poverty level (over 20%) was recorded in eight countries, including 5 from the CEE (Romania, Bulgaria, Latvia, Lithuania and Estonia), and in 3 Western European countries (Spain, Greece and Italy). The situation is all the more difficult as its deterioration was observed in the majority of countries. Most studies have argued that the populations identified as “income poor” or “materially deprived” do not overlap perfectly, for instance in Hungary and Slovakia, which have high levels of deprivation but low income poverty rates as well as, though to a lesser extent, the Czech Republic lowest poverty risk in the EU, together with the Netherlands, but intermediate performance on deprivation. Conversely, Spain has a high poverty risk but a below average proportion of the deprived (Perry, 2002), (Fusco et al., 2011). Despite the great progress in the availability and quality of data on poverty, it is still an issue requiring further development work on the level of both domestic and foreign (Seva, Larsson, 2015), (Melamed, 2015).

Having analysed the average poverty level of the 28 EU countries, it increased primarily in the years 2005-2006 and again in the period 2015-2016. In particular, the rapid increase in the level of poverty was recorded in the countries of CEE (2000: W=15%, CEE=15%, 2017: W=16%, CEE=18%). In four Western European countries only the poverty rates improved in the analysed period (Ireland, France, United Kingdom, Portugal).

2.2 Development paths in the period 2008-2017

As it has been presented in the previous section, despite the positive changes on the labour market since 2000, the poverty level of the European societies deepened. Table 3 presents the paths of changes in terms of the factors included on the axis employment – opportunities and threats related to the labour market – poverty for the 28 EU countries in 2017 against 2008, the

year in which the period of many macroeconomic indicators' improvement was interrupted by the global crisis.

Tab. 3: Development paths of the 28EU countries on the SD-axis indicators (ER) – (SDMo) – (SDMt) – (Pov) in 2017 against 2008 (all variables as stimulants)

| Description of development paths | Direction of changes in 2017 against 2008 (+ improvement; - deterioration) | | | | EU Countries |
|--|---|-------------|-------------|------------|---|
| | <i>ER</i> | <i>SDMo</i> | <i>SDMt</i> | <i>POV</i> | |
| Positive changes | + | + | + | + | Portugal, Austria United Kingdom Poland |
| Improvement of employment towards knowledge and innovation capital | + | + | - | - | Sweden Slovenia Bulgaria Hungary Lithuania Germany Slovakia France Estonia Czech Rep. Malta Romania Belgium |
| Improvement of employment | + | - | - | - | Luxembourg |
| Employment drop along with improving the labour market characteristics and reducing the level of income poverty | - | + | + | + | Cyprus Croatia Latvia |
| Improvement in the labour market innovation along with the deterioration of other parameters | - | + | - | - | Netherlands Denmark Spain Greece Italy Ireland |
| Deterioration in employment, including knowledge capital along with improving the situation in terms of poverty and threats to the labour market | - | - | + | + | Finland |

Source: Author's compilation.

In 2017, against 2008, only 4 countries achieved improvement in all four areas, i.e.: Portugal, Austria, United Kingdom and Poland. Poland was the only country from the CEE included in this group. The next two countries (Croatia and Latvia) recorded improvement in three areas of the axis (except the employment indicator) and, in addition to Cyprus, were included in the group “employment drop along with improving the labour market characteristics and reducing the level of income poverty”. In the case of eight other CEE countries, they were developing in line with the path along which employment indicators have improved, including the development of knowledge and innovation capital, however, the indicators referring to poverty and labour market risks have deteriorated.

Conclusion

The economies of the EU countries are recording intense transformations, highlighting employment improvement, education or preventing poverty as their overarching development goals. The recent years have shown that while in terms of employment and labour market structure improvement, related to new technologies and knowledge-based economy, certain

successes were recorded, in the case of poverty and income inequalities the situation deterioration is still observed in many countries. This problem refers to both the economies characterised by a lower level of economic development, e.g. Bulgaria (poverty rate increase from 14% in 2000, up to 21,4% in 2008 and 23,4% in 2017), or Romania (increase from 17% in 2000, up to 23,6% in 2008 and in 2017), as well as to the highly developed ones included among the economic leaders, e.g. Germany (increase from 10% in 2000, up to 15,2% in 2008 and 16,1% in 2017), Sweden (increase from 9% in 2000, up to 13,5% in 2008 and 15,8% in 2017), Luxemburg (increase from 12% in 2000 to 13,4% in 2008 and 18,7% in 2017).

The EU activities carried out so far and focused on improving the situation of the poorest countries and reducing income disproportions have not been sufficient. The actions aimed directly at the remuneration increase, balanced distribution of income and counteracting poverty are essential.

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