

*EQUAL OPPORTUNITY IN EDUCATION – THE PREMISE OF SOCIAL INCLUSION**

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Abstract

A common target of EU strategies is to ensure a level playing field by favoring young people's access to the labor market, which requires appropriate educational policies focused on reducing gender inequality, poverty and geographical positioning. In addition to reducing disparities in the labor market, education systems will be improved to help young people acquire appropriate, superior to basic skills and provide transferable skills. A higher level of education and a low early school leaver's rate increase employment opportunities. Young people will strive to find a job to ensure a decent lifestyle, thus fulfilling one of the objectives of sustainable development.

Keywords: Education, Social Inclusion, Unemployment, Equal Opportunities

JEL Classification: E24, I20, I24, J24

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1. Introduction

In recent years, Romania has adopted numerous policies both to fight poverty and social exclusion, as well as to establish a strategic framework for fair education.

All these were based on the recommendations made by the Council of the European Union at the Education, Youth and Culture Council meeting on 11th May 2010 (Brussels) addressed to the Member States on the social dimension of education:

- Promote and support the expansion of access to education by strengthening financial support schemes for students or by diversifying alternative educational tracks or making them more flexible;
- developing policies aimed at increasing the graduation rates of higher education programs by including measures such as: developing individualized support, guidance and counseling systems for students;
- continuing to remove barriers, diversifying and increasing the number of opportunities, increasing the quality of learning mobility and providing incentives to students from vulnerable groups for participation in such mobility programs;
- promoting special programs for adult students and other nontraditional students.

Globalization, pressure on resource use and the aging of the population coupled with an economic crisis have led to the development and adoption in 2010 of the Europe 2020 Strategy - a ten-year program (2010-2020) which pursues three priorities:

- smart growth - developing an economy based on knowledge and innovation;
- sustainable growth - Promoting a more resource-efficient, greener and more competitive resource economy;
- inclusive growth - promoting an economy with a high employment rate that ensures social and territorial cohesion.

As pointed out by the former President of the European Commission, José Manuel Durão Barroso, “these three priorities are mutually supportive and able to help the EU and the Member States achieve a high level of employment, productivity and social cohesion”.[†]

The EU 2020 Strategy focuses on education and training objectives, due to their influence on economic growth. This influence is concretized by increasing employment, productivity, participation, skills training etc.

In order to develop the Europe 2020 objectives, the heterogeneity of the EU Member States was taken into account, so that the proposed objectives are relevant, the approach being flexible enough to be able to translate European objectives into national targets that respect the particularities of each country.

[†] COM(2010)2020

Thus, the Government Strategy for achieving the Europe 2020 objectives includes action directions and measures on the education system, one of the main objectives being to set the target of reducing early school leaving below 10% as part of the EU 2020 strategy[‡].

More studies on the consequences of school failure show that school drop-outs may lead to lower employment rates, lower incomes (wage) and lower life expectancy, poor health, less aversion to risk, and low satisfaction of life (Psacharopoulos, 2007). Especially with regard to health and well-being, research in the field confirms that better education is done alongside a healthy lifestyle, smoking, alcohol consumption, including regular exercise and a good psychological state.

The first mechanism by which education influences health is that it determines young people to better understand the health risks that can be associated with diet - the environment, working conditions, stress and dependence - and supports their ability to ensure the quickest and most effective way health care (Brenner, 2009). In addition, the intrinsic relationship between education and income levels helps explain the impact of education on health, education being an important factor in individual development. Access to education is an essential right, and its achievement is an important participatory process for children, allowing them equal access and respect in society as well as adults, taking into account that they can take place throughout their lives. Encouragement of education has been visible since the 18th and 19th centuries when emphasis was placed on this process as well as on the skills developed through education. At the same time, education can also be considered a source of exclusion for children, especially when it cannot be achieved. Educational policies promote, in addition to reducing exclusion, the drop in school drop-out. Abandoning the learning process turns children into future adults with obvious integration problems.

Provide opportunities for all children to participate in education by accessing and identifying how each child should be integrated into structures that facilitate social and individual learning and identifying the dimensions of the teaching process that supports learning for all pupils (by providing an open, flexible and efficient of the educational system) represent the two general objectives of Education for All, defined as access to education and its quality for all children (Salamanca, 1994)[§].

At the same time, there are disagreements about the need for equal opportunities in education, which has led some authors to have an attitude expressing a total or partial disagreement (Jencks, 1988; Westen, 1982, 1985). However, we believe that Christopher

[‡] Council conclusions of 12 May 2009 on a strategic framework for European cooperation in education and training ('ET 2020'), OJ C 119, 28.05.2009, pp. 2-10.

[§] THE SALAMANCA STATEMENT AND FRAMEWORK FOR ACTION ON SPECIAL NEEDS EDUCATION Adopted by the WORLD CONFERENCE ON SPECIAL NEEDS EDUCATION: ACCESS AND QUALITY Salamanca, Spain, 7-10 June 1994.

Jencks's interpretation (1998) that achieving equal opportunities in education might be impractical, "an idea that can mean so much means anything" would be a mistake. In particular, although we can interpret equality of opportunity in different ways, none of these should conclude that there can be no progress in this respect. To determine a viable definition of the phenomenon, we should consider both the conceptual structure of equal opportunities in education and the values that motivate our concern for it.

In the current global context, educational policy debates focus on the need to raise educational standards both in EU countries and globally.

Currently, in Romania, the national strategy for preventing and fighting discrimination "Equality, Inclusion, and Diversity" for the period 2018-2022 aims to reduce the number of discrimination cases in our country, to promote equality of rights and opportunities for all through measures coherent, integrated and interinstitutional ones, thus contributing to the development of an inclusive society. The Strategy is a follow-up to the National Strategy for the Implementation of Measures to Prevent and Combat Discrimination (2007-2013), which was a draft of the National Council for Combating Discrimination and promotes the inclusion of equality and non-discrimination policy in all public domains.

2. ET 2020 and Europe 2020 strategy

ET 2020, the Professional Training Strategy, in full compliance with the Europe 2020 strategy, promotes smart development. This is achievable, on the one hand, to reduce poverty by creating new jobs - representing the premise of inclusive development and, on the other hand, investment in sustainable education, research and innovation. Direct or indirect links between training and smart growth (Digital Agenda for Europe, Innovation Union, Youth on the Move), sustainable growth (Efficient Resources for Europe, Industrial Policies for the Globalization Era) and Inclusive Growth (Agenda for New Skills and Occupations; European Platform Against Poverty) highlighted in the strategy helps to establish the achievement of strategic objectives. Certainly this is done individually, for each member state of the European Union, depending on the evolution of indicators in the reference period and on their own targets.

Table 1. National targets Europe 2020 - evolution of indicators

Europa 2020 targets	2011	2012	2013	2014	2015	2016	National target 2020
Goal 1							
Employment rate (% of population aged 20-64)	63.8	64.8*	64.7*	65.7*	66**	66.3*	70.0
Goal 2							
Gross domestic expenditure on R&D (% of GDP)	0.49** (0.31 + 0.18 private)	0.48** (0.29 + 0.19 private)	0.39** (0.27 + 0.12 private)	0.38** (0.22 + 0.16 private)	0.49** (0.27 + 0.22 private)	0.48** (0.27 + 0.21 private)	2 (1 public sources + 1 private sources)
Goal 4							
Early leavers from education and training (%)	18.1*	17.8*	17.3*	18.1*	19.1*	18.5*	11.3
Tertiary educational attainment (% of population aged 30-34)	20.3*	21.7*	22.9*	25*	25.6*	25.5*	26.7
Goal 5							
Promoting social inclusion. Poverty to be reduced by lifting at least 20 million people out of the risk of poverty or social exclusion (thousands).	- 849*	- 441*	- 723*	- 1,071*	- 1,680*	n.a.	Reducing by 580 thousands of people at risk of poverty and social exclusion compared to 2008.

* Source: Eurostat

** Source: National Institute of Statistics

The data in Table 1 represents, according to the National Reform Program 2017, four of Romania's Europe 2020 objectives, and progress until 2016.

Estimates of the Europe 2020 indicators are based on the current socio-economic context. Thus, accelerating economic growth will improve the employment rate for the 20-24 year-old population and reduce the unemployment rate, with a 1% change in the occupied population forecast at 5.3% in 2020 (according to AMIGO).

Table 2. Labor force market evolution

Europa 2020 benchmarks	2016	2017	2018	2019	2020
Employment rate of the population aged 20-64	66.3	67.3	68.4	69.3	70
Men	75.0	69.9	78.7	80.3	81.5
Women	57.4	57.4	57.7	58.0	58.2
Unemployment rate, ILO (%)	5.9	5.7	5.5	5.4	5.3

Source: NSI and National Commission of Prognosis (The 2017 edition of the Convergence Programme for 2017-2020).

The Education and Training Monitor assesses annually the progress of the Member States of the European Union in relation to the Europe 2020 benchmarks.

Table 3. Europa 2020 Targets – educational and professional training levels

ET 2020 benchmarks	RO (2016) %	RO target %	UE (2016) %	EU Target %
Early leavers from education and training The share of 18 to 24 year olds having attained ISCED level 0-2 and not receiving any formal or non-formal education or training in the four weeks preceding the survey.	18.5	11.3	10.7	Below 10
Tertiary educational attainment The share of 30 to 34 year olds having successfully completed ISCED level 5-8.	25.6	26.7	39.1	At least 40
Early childhood education and care The share of children aged 4 to the age of compulsory primary education who are participating in education.	87.6		94.8	95
Underachievement in reading, maths and science The share of 15 year-olds failing to reach level 2 in the OECD's PISA for reading, mathematics and science.	Reading: 38.7 Maths: 39.9 Science: 38.5		19.7 22.2 0.6	15 15 15
Employment rate of recent graduates The share of employed 20 to 34 year-olds having successfully completed ISCED 3-8 one to three years preceding the survey and who are no longer in education or training	69.3		78.2	8.2
Adult participation in learning The share of 25 to 64 year olds who received formal or non-formal education or training in the four weeks preceding the survey	1.2		10.8	15

Source: NSI and National Commission of Prognosis (The 2017 edition of the Convergence Programme for 2017-2020).

3. Data analysis

At the level of Romania, the most recent data shows us an active population of 9.418 million people. According to the National Institute of Statistics, 8.967 million people were employed and 451,000 were unemployed.

The “joy” generated by an unemployment rate on the total population in the second quarter of this year of 4.8%, down 0.7 percentage points from the previous quarter, is diminished by the youth unemployment rate of 15.4 %. However, the employment rate of the 20-64 year old population was 70.5%, exceeding the national target of 70% set in the context of the Europe 2020 strategy by 0.5 percentage points.

An analysis of the unemployment rate by training levels in the period 2011-2016 show a rate of decline in the unemployment rate specific to the population with an upper level of education slightly different from the unemployment rate per total population and an increase among people with high school education.

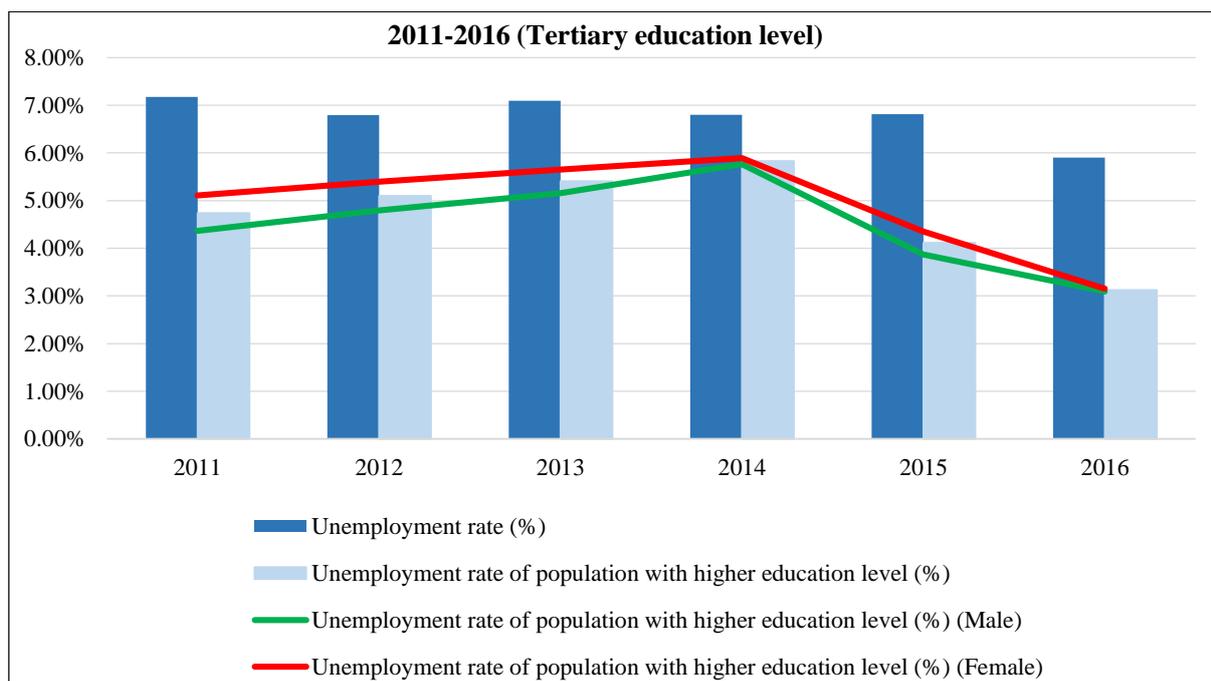


Figure 1. Unemployment rate (tertiary education level)

To test the hypothesis that the unemployment rate of people with higher education has changed considerably compared to 2016 we use the z-Test for Two Proportion. The data used is in **Appendix 2**.

$$P_{1995} = \frac{20689}{877058} = 0.0236, \text{ ie. } 2.36\%;$$

$$P_{2016} = \frac{56021}{1791913} = 0.0313, \text{ ie. } 3.13\%.$$

Starting from the two statistical hypotheses:

$\{ H_0: p_1 = p_2$, The null hypothesis of the test is that the proportions are the same
 $H_0: p_1 \neq p_2$, The alternative hypothesis of the test is that the proportions are not the same

The overall proportion of the sample is:

$$P_{2016} = \frac{20689 + 56021}{877058 + 1791913} = 0.0287, \text{ that is } 2.87\%.$$

The statistic calculated for the z-Test for Two Proportion is:

$$z = \frac{(\hat{p}_1 - \hat{p}_2) - 0}{\sqrt{\hat{p}(1 - \hat{p}) \left(\frac{1}{n_1} + \frac{1}{n_2} \right)}} = \frac{0.0313 - 0.0236}{\sqrt{0.0287(1 - 0.0287) \left(\frac{1}{877058} + \frac{1}{1791913} \right)}}$$

We obtained: $z = 35.2460 > z_{\alpha/2} = 1.96$, i.e. we reject the hypothesis H_0 and accept H_1 .

Compared to 1995, it is noted that the unemployment rate of persons with a higher level of education in 2016 differs significantly, for a probability of guaranteeing the results of 99% ($p\text{-value} < 0.05$).

Calculating for the same reference period, this increase is reflected both in the analysis of male and female higher education.

$$z_M = 37.8595; z_F = 10.3592.$$

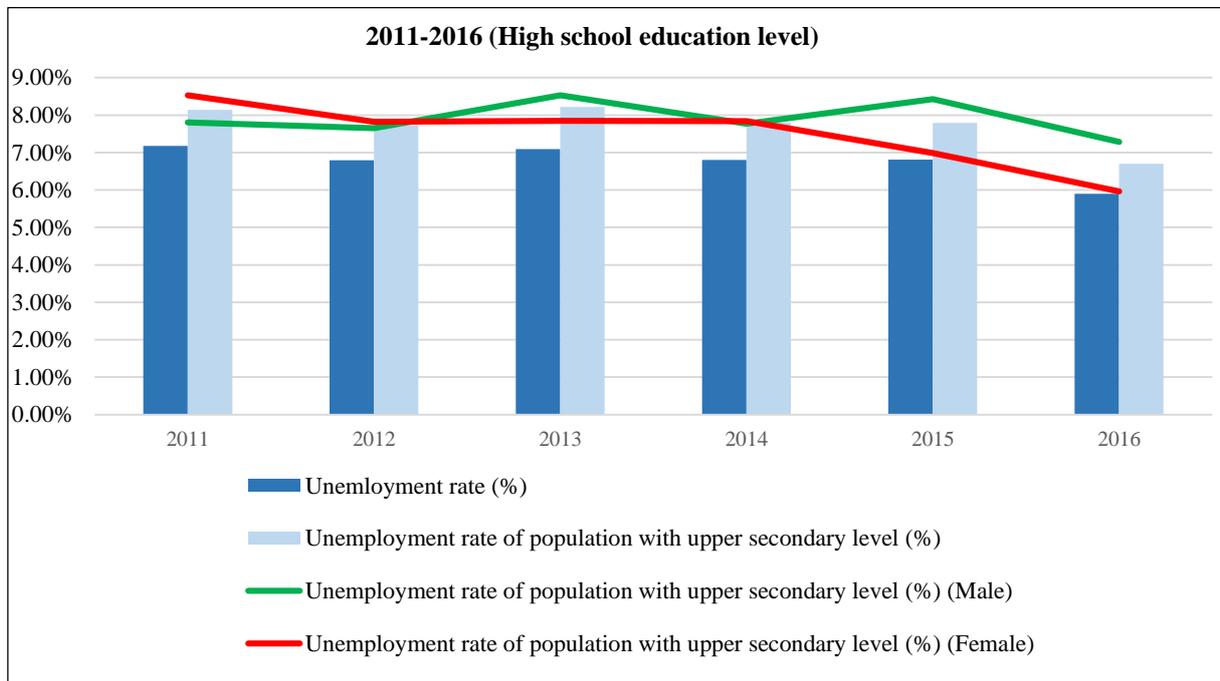


Figure 2. Unemployed by High school educational level and by sex, 2011-2016

If we refer to the unemployment encountered among high-school level students, a similar analysis of the data (Appendix 3), compared to 1995, $z = -84.6952 < z_{\alpha/2} = 1.96$, shows a decrease ($p\text{-value} < 0.05$), especially by the contribution of woman's, $z_F = -122.0117$. In contrast, we notice a decrease in the unemployment rate compared to 1995 for males: $z_M = 4.9332$.

In the second quarter of this year, according to the INS, the total disparity between the two unemployment rates by sex was 2.1 percentage points (5.7% for men versus 3.6% for women).

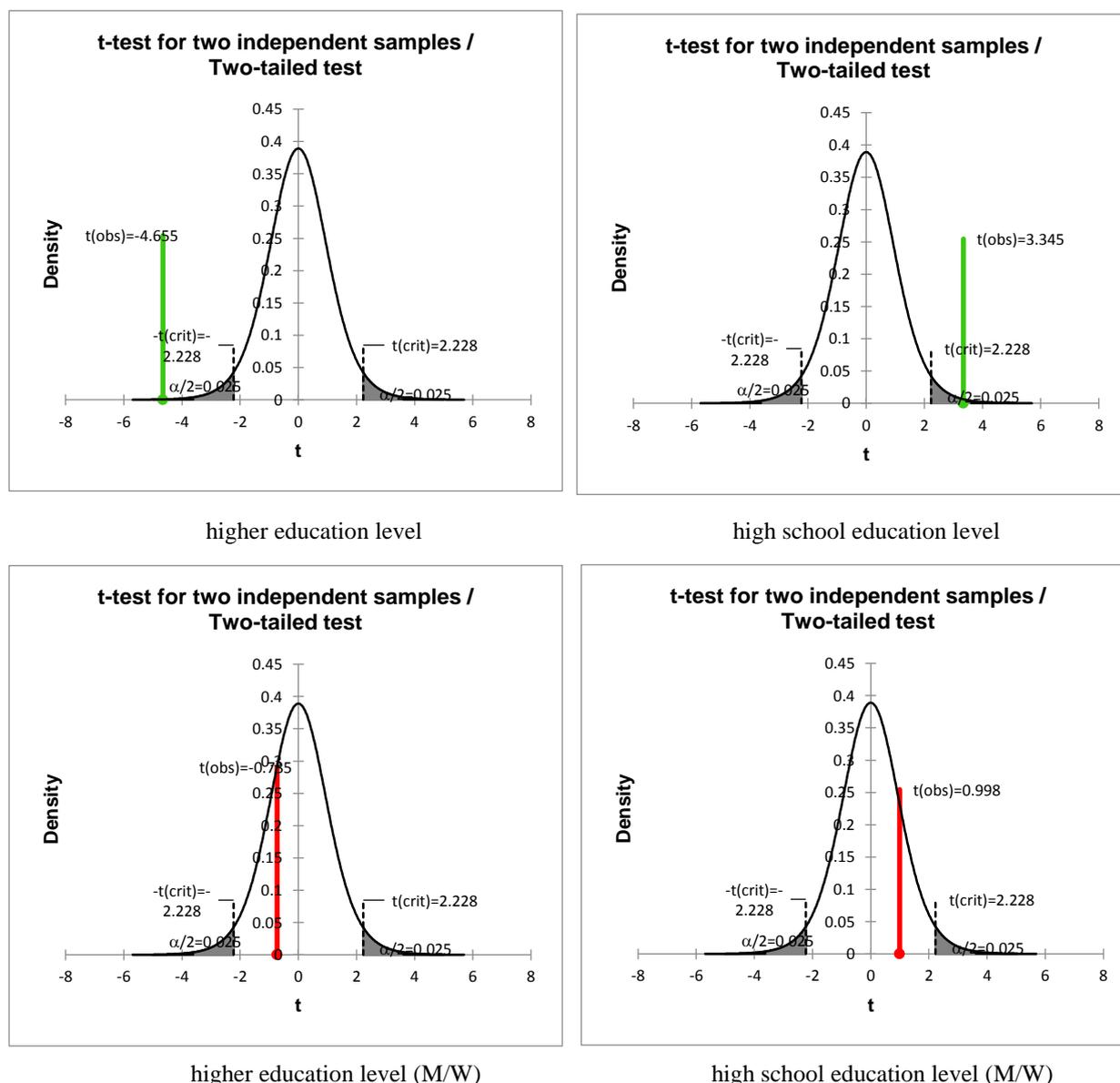


Figure 3. Data analysis 2011 – 2016 (Appendix 4)

Another important indicator in the analysis of the higher education system within the Europe 2020 strategy is the rate of participation in tertiary education. If it grew steadily up to 25.6% between 2011 and 2015, it remained at the same level in 2016, with the share of graduates in our country being the lowest in the European Union. Even if reaching the 26.7% national target of the Europe 2020 strategy does not seem to pose a challenge, we cannot say the same if we are talking about reaching the EU average (39.1% in 2016).

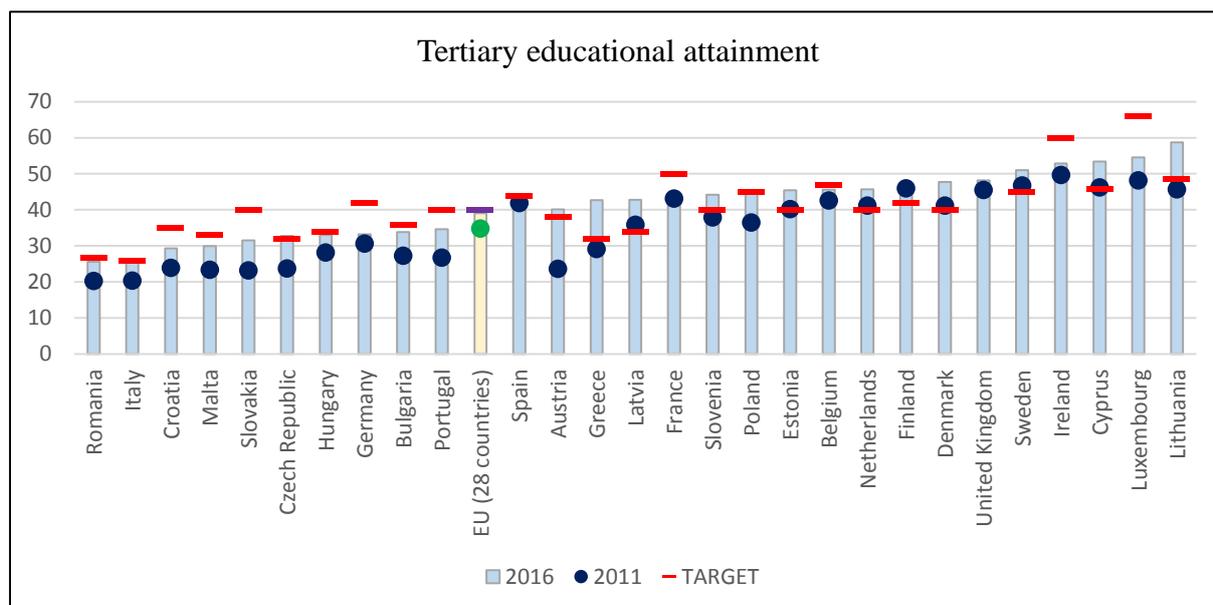


Figure 4. Tertiary educational attainment 2011, 2016 and national country target level

Source: Eurostat, EU Labour Force Survey, online data code [edat_lfse_03]

Relevance of university studies to the labor market is a major concern, so it is useful to adapt university curricula, including teaching practices and techniques, to help students develop their skills better. In this respect, Romania adopted the Tertiary Education Strategy in July 2015**, which aims to make higher education more relevant to labor market needs and more accessible to disadvantaged groups. At the same time, it is necessary to extend the limited connections of universities with the most innovative sectors of the economy and industry, which obviously presupposes the updating and modernization of the existing study programs.

But for the analysis of equal opportunities, we cannot conclude this research without studying the existence of significant differences in the unemployment rate for people with higher or upper secondary education depending on the urban / rural background.

Obviously, we will report on the same reference period. The results obtained for the persons with higher education (2016 compared to 1995) show a significant increase in the unemployment rate, both for the urban population ($z_U = 24.9615$) and for the rural ones $z_R = 34.0286$.

When we talk about people with a high school education level, we notice a difference between the two residential backgrounds.

A value $z_U = -126.9642$ shows a significant decrease in the urban unemployment rate in 2016 compared to 1995. In contrast, when it comes to rural areas, $z_R = 33.0553$, the share of unemployed with high school education has increased in 1996 (compared to 1995).

** Hotărârea Guvernului nr. 565 din 15.7.2015

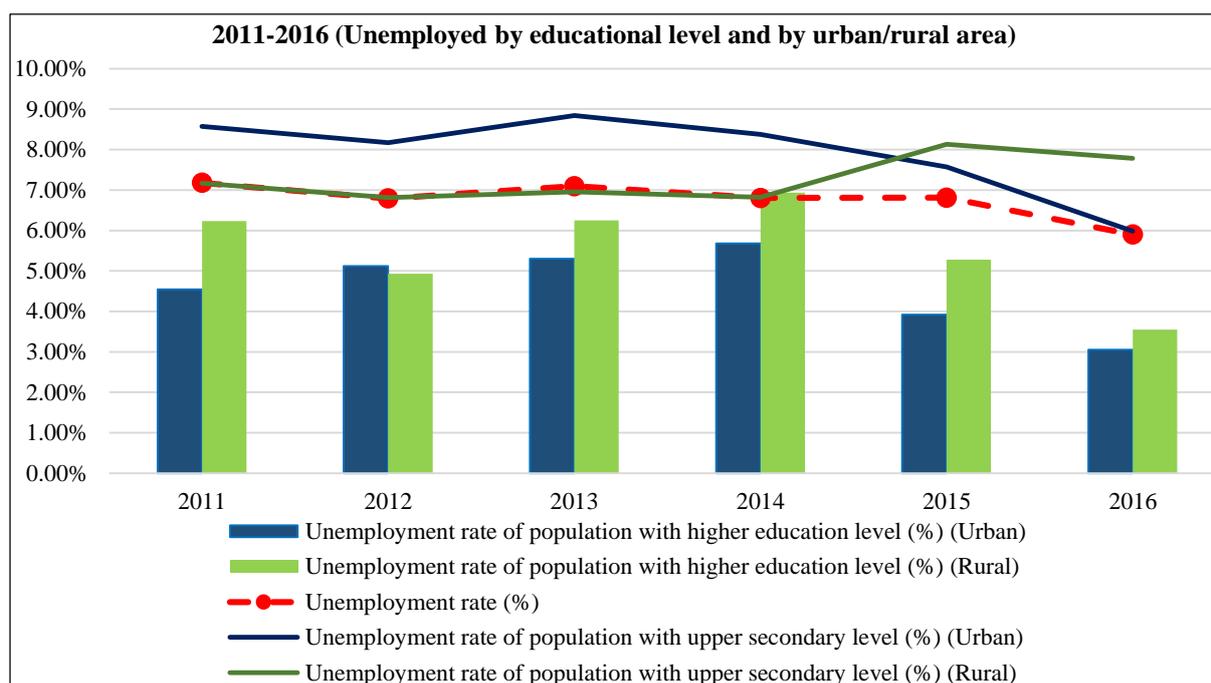


Figure 5. ILO unemployed by educational level and by urban/rural area, 2011-2016

4. Conclusion

Unfortunately, it is no surprise that rural-urban disparities and inequality in education often overlap. At present, we can consider access to quality education a challenge especially in rural areas. This is a sensitive point of the Romanian educational system, because 45% of Romania's school population is studying in rural areas. This is easily observed in the performance ratings of all performance indicators by ARACIP (the quality assurance body in pre-university education) in 2015, which shows much lower scores in rural schools than urban schools. Differences can also be seen with national examinations.

According to the OECD, inequalities are further highlighted by the widespread use of private meditations, so in country-specific recommendations of 2017, Romania is urged to improve access to quality food education, especially for Roma and rural children.

Last but not least, we can observe this and compare the unemployment of the entire labor force with unemployment among young people in Romania aged 15-24, the latter being well above the unemployment rate at national level. This would mean the training of young people in different professions, that is to say, a focus on dual learning, namely, learning a job as early as school. In this respect, a future study would consist of monitoring the professional development of graduates, with an interesting analysis of the compatibility of tertiary education with the demands of employers on the labor market.

At the same time, in addition to the emigration of higher education workers, a low proportion of graduates may lead to a decline in skills in sectors requiring a high degree of knowledge and, ultimately, to a limitation of economic growth. Thus, another important aspect could be the analysis of the quality and relevance in the labor market of the programs offered by universities according to the fields of study at the regional level.

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Appendix 1

Reference criteria ET2020

		România		UE average		
ET 2020 benchmarks		2011	2016	2011	2016	
Early leavers from education and training (age 18-24)	Total	18.1%	18.5%	13.4%	10.7%	
Tertiary educational attainment (age 30-34)	Total	20.3%	25.6%	34.8%	39.1%	
Early childhood education and care (ECEC) (from age 4 to starting age of compulsory education)		86.4%	87.6% ¹⁵	93.2%	94.8% ¹⁵	
Proportion of 15 year-olds with underachievement in:	Reading	37.3% ¹²	38.7% ¹⁵	19.6%	19.7% ¹⁵	
	Maths	40.8% ¹²	39.9% ¹⁵	22.2%	22.2% ¹⁵	
	Science	37.3% ¹²	38.5% ¹⁵	17.7%	20.6% ¹⁵	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-8 (total)	70.8%	69.3%	77.1%	78.2%	
Adult participation in learning (age 25-64)	ISCED 0-8 (total)	1.6%	1.2%	9.1%	10.8%	
Other contextual indicators						
Education investment	Public expenditure on education as a percentage of GDP	4,1%	3.1% ¹⁵	5.1%	4.9% ¹⁵	
	Expenditure on public and private institutions per student in € PPS	ISCED 1-2	€1.625 ¹²	€1.866 ¹⁴	:	:
		ISCED 3-4	€1.723 ¹²	€2.328 ¹⁴	:	:
		ISCED 5-8	€3.932 ¹²	€4.180 ¹⁴	:	:
Early leavers from education and training (age 18-24)	Native-born	17.5%	18.6%	13.5%	9.8%	
	Foreign-born	:	:	24.9%	19.7%	
Tertiary educational attainment (age 30-34)	Native-born	20.4%	25.6%	34.6%	39.9%	
	Foreign-born	:	:	30.9%	35.3%	
Employment rate of recent graduates by educational attainment (age 20-34 having left education 1-3 years before reference year)	ISCED 3-4	58.8%	59.6%	71.3%	72.6%	
	ISCED 5-8	81.4%	80.7%	82.5%	82.8%	
Learning mobility	Inbound graduates mobility (bachelor)	1.6% ¹³	2.5% ¹⁵	5.5% ¹³	6.0% ¹⁵	
	Inbound graduates mobility (master)	2.5% ¹³	4.4% ¹⁵	13.6% ¹³	15.1% ¹⁵	

Sources: Eurostat (ec.europa.eu/education/monitor); OECD (PISA).

Notes: data refer to weighted EU average, covering a different numbers of Member States depending on the source; 12 = 2012, 13 = 2013; 14 = 2014, 15 = 2015.

Appendix 2

Tertiary education data

Tertiary education (Total)	2011	2012	2013	2014	2015	2016	1995
Employment by educational (higher education level)	1475785	1527412	1560263	1588588	1724319	1735892	856369
Students enrolled in Bachelor studies	539852	464592	433234	411229	410697	405638	336141
Unemployed with higher education level	73387	82065	89221	98340	73952	56021	20689
Active population with higher education level	1549172	1609477	1649484	1686928	1798271	1791913	877058
Unemployment rate of population with higher education level (%)	4.74%	5.10%	5.41%	5.83%	4.11%	3.13%	2.36%
Employment	8528149	8605052	8549132	8613739	8535386	8448777	10673035
Unemployment ILO	659426	627209	652984	628682	623910	529869	748057
Active population	9187575	9232261	9202116	9242421	9159296	8978646	11421092
Unemployment Rate (%)	7.18%	6.79%	7.10%	6.80%	6.81%	5.90%	6.55%
Tertiary education (Male)							
Employment by educational (higher education level)	740540	758432	768814	787877	851818	853662	481505
Students enrolled in Bachelor studies	252961	219414	203943	193252	191920	189504	167077
Unemployed with higher education level	33818	38207	41789	48215	34263	27269	9837
Active population with higher education level	774358	796639	810603	836092	886081	880931	491342
Unemployment rate of population with higher education level (%)	4.37%	4.80%	5.16%	5.77%	3.87%	3.10%	2.00%
Tertiary education (Female)							
Employment by educational (higher education level)	735245	768980	791449	800711	872501	882230	374864
Students enrolled in Bachelor studies	286891	245178	229291	217977	218777	216134	169064
Unemployed with higher education level	39569	43859	47431	50124	39689	28752	10853
Active population with higher education level	774814	812839	838880	850835	912190	910982	385717
Unemployment rate of population with higher education level (%)	5.11%	5.40%	5.65%	5.89%	4.35%	3.16%	2.81%
Tertiary education (Urban)							
Employment by educational (higher education level)	1309565	1342186	1381053	1406674	1481576	1490388	766390
Students enrolled in Bachelor studies	539455	464397	433040	411070	410508	405467	336141
Unemployed with higher education level	62331	72456	77280	84774	60427	46983	19482
Active population with higher education level	1371896	1414642	1458333	1491448	1542003	1537371	785872
Unemployment rate of population with higher education level (%)	4.54%	5.12%	5.30%	5.68%	3.92%	3.06%	2.48%
Tertiary education (Rural)							
Employment by educational (higher education level)	166221	185226	179210	181915	242743	245504	89979
Students enrolled in Bachelor studies	397	195	194	159	189	171	:
Unemployed with higher education level	11056	9609	11941	13565	13525	9038	1207
Active population with higher education level	177277	194835	191151	195480	256268	254542	91186
Unemployment rate of population with higher education level (%)	6.24%	4.93%	6.25%	6.94%	5.28%	3.55%	1.32%

Source: NSI, TEMPO-Online

Appendix 3

High school education data

High school education	2011	2012	2013	2014	2015	2016	1995
Employment by educational (upper secondary level)	2542679	2629916	2654802	3039581	3146712	3238076	2424610
Pupils enrolled in upper secondary education	888768	831810	776616	727072	673615	650832	787211
Unemployed with upper secondary education	225431	220280	237585	257228	265985	232534	226422
Active population with upper secondary education	2768110	2850196	2892387	3296809	3412697	3470610	2651032
Unemployment rate of population with upper secondary level (%)	8.14%	7.73%	8.21%	7.80%	7.79%	6.70%	8.54%
Employment	8528149	8605052	8549132	8613739	8535386	8448777	10673035
Unemployment ILO	659426	627209	652984	628682	623910	529869	748057
Active population	9187575	9232261	9202116	9242421	9159296	8978646	11421092
Unemployment Rate (%)	7.18%	6.79%	7.10%	6.80%	6.81%	5.90%	6.55%
High school education							
Employment by educational (upper secondary level)	1356764	1418514	1429220	1663622	1751895	1795846	1153545
Pupils enrolled in upper secondary education	456167	424185	391327	359427	330399	315298	348846
Unemployed with upper secondary education	114898	117475	133223	140160	161264	141089	88660
Active population with upper secondary education	1471662	1535989	1562443	1803782	1913159	1936935	1242205
Unemployment rate of population with upper secondary level (%)	7.81%	7.65%	8.53%	7.77%	8.43%	7.28%	7.14%
High school education (Female)							
Employment by educational (upper secondary level)	1185915	1211402	1225582	1375959	1394816	1442230	1271065
Pupils enrolled in upper secondary education	432601	407625	385289	367645	343216	335534	438365
Unemployed with upper secondary education	110533	102805	104363	117068	104721	91445	137762
Active population with upper secondary education	1296448	1314207	1329945	1493027	1499537	1533675	1408827
Unemployment rate of population with upper secondary level (%)	8.53%	7.82%	7.85%	7.84%	6.98%	5.96%	9.78%
High school education (Urban)							
Employment by educational (upper secondary level)	1754900	1763735	1763258	1906560	1908792	1961906	1696877
Pupils enrolled in upper secondary education	818414	764553	715101	673324	625508	606611	737734
Unemployed with upper secondary education	164583	156949	170953	174318	156384	124814	175310
Active population with upper secondary education	1919483	1920684	1934211	2080878	2065176	2086720	1872187
Unemployment rate of population with upper secondary level (%)	8.57%	8.17%	8.84%	8.38%	7.57%	5.98%	9.36%
High school education (Rural)							
Employment by educational (upper secondary level)	787779	866181	891544	1133021	1237919	1276171	727733
Pupils enrolled in upper secondary education	70354	67257	61515	53748	48107	44221	49477
Unemployed with upper secondary education	60847	63330	66633	82909	109602	107720	51111
Active population with upper secondary education	848626	929511	958177	1215930	1347521	1383891	778844
Unemployment rate of population with upper secondary level (%)	7.17%	6.81%	6.95%	6.82%	8.13%	7.78%	6.56%

Source: NSI, TEMPO-Online

Appendix 4

Data analysis results for 2011-2016

t-Test: Two-Sample Assuming Equal Variances

	<i>Unemployment rate of population with higher education level (%)</i>	<i>Unemployment rate (%)</i>
Mean	0.047188853	0.067637321
Variance	9.51726E-05	2.05949E-05
Observations	6	6
Pooled Variance	5.78837E-05	
Hypothesized Mean Difference	0	
df	10	
t Stat	-4.655252451	
P(T<=t) one-tail	0.000450402	
t Critical one-tail	1.812461123	
P(T<=t) two-tail	0.000900805	
t Critical two-tail	2.228138852	

t-Test: Two-Sample Assuming Equal Variances

	<i>Unemployment rate of population with higher level (%) (Male)</i>	<i>Unemployment rate of population with higher education level (%) (Female)</i>
Mean	0.045079234	0.049258392
Variance	9.02496E-05	0.000103562
Observations	6	6
Pooled Variance	9.69056E-05	
Hypothesized Mean Difference	0	
df	10	
t Stat	-0.735317763	
P(T<=t) one-tail	0.239518297	
t Critical one-tail	1.812461123	
P(T<=t) two-tail	0.479036594	
t Critical two-tail	2.228138852	

t-Test: Two-Sample Assuming Equal Variances

	<i>Unemployment rate of population with upper secondary level (%)</i>	<i>Unemployment rate (%)</i>
Mean	0.07730501	0.067637321
Variance	2.95144E-05	2.05949E-05
Observations	6	6
Pooled Variance	2.50546E-05	
Hypothesized Mean Difference	0	
df	10	
t Stat	3.345331469	
P(T<=t) one-tail	0.003711751	
t Critical one-tail	1.812461123	
P(T<=t) two-tail	0.007423501	
t Critical two-tail	2.228138852	

t-Test: Two-Sample Assuming Equal Variances

	<i>Unemployment rate of population with upper secondary level (%) (Male)</i>	<i>Unemployment rate of population with upper secondary level (%) (Female)</i>
Mean	0.079109651	0.074971005
Variance	2.28008E-05	8.04767E-05
Observations	6	6
Pooled Variance	5.16388E-05	
Hypothesized Mean Difference	0	
df	10	
t Stat	0.997541597	
P(T<=t) one-tail	0.171013585	
t Critical one-tail	1.812461123	
P(T<=t) two-tail	0.34202717	
t Critical two-tail	2.228138852	