

**FORMAL EDUCATION OF POLISH SOCIETY  
AS A FACTOR AFFECTING HUMAN CAPITAL**

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**A b s t r a c t**

Human resources in Poland have varied and valuable features and components that constitute significant human capital. A steady increase in the educational level of the society has a beneficial effect on the formation of capital. This study attempts to show the changes in the education of Polish society during the period of 1990–2014.

**FORMALNE WYKSZTAŁCENIE POLSKIEGO SPOŁECZEŃSTWA  
JAKO CZYNNIK WPLYWAJĄCY NA KAPITAŁ LUDZKI**

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**A b s t r a k t**

Na zasoby ludzkie w Polsce składa się wiele zróżnicowanych i wartościowych cech i składowych, które stanowią znaczący kapitał ludzki. Stały wzrost poziomu wykształcenia społeczeństwa wpływa korzystnie na kształtowanie wartości kapitału. W opracowaniu podjęto próbę ukazania zmian w wykształceniu społeczeństwa polskiego w okresie 1990–2014.

## Introduction

The most valuable asset of any country is the people, the center and the purpose of economic progress (TSURU 1986, p. 14). W. Petty said that the personnel value exceeds about 70% the value of all movable and immovable property of England (PETTY 1699, p. 192 as cited in: DOMAŃSKI 1993, p. 31). At the end of the twentieth century in the early 90s, G. S. Becker estimated that the value of the human capital of the United States approaches the amount of 154 billion dollars, more than three times the value of the financial assets of the country (BOCHNIARZ, GUGAŁA 2005, p. 11). One of the basic factors of socio-economic development of a country, different regions, towns and villages, and even enterprises is human capital. Its components and roles are dependent not so much on the cardinality of the population employed, but above all on the level of knowledge, skills, entrepreneurship, health and other characteristics taken into consideration in studies.

All of these and other desirable properties of human capital are formed at a given time by investment in people. They contribute not only to physical development but primarily serve the shaping of personality and the intellectual development. The quality of human resources is the result of long-term demographic changes, taking place under the influence of many factors. Authors are mainly interested in the intensity and level of education.

Therefore, special attention was paid to the results of studies in Poland, divided into urban and rural areas. In the country in the last decade of the last century and at the beginning of this century, there was quite a radical transformation of population, which is confirmed by variables describing the most important phenomena, processes, demographic and social-economic structure. Without going into detail, it is worth noting that most of all there was a weakening dynamic of population growth and an overall size and intensity of the mobility of the population also significantly changed the structure of the population. In addition to decreasing mobility, noticeable changes also exist in the directions of migration. There remains, of course, without affecting the spatial structure of the population, changes in the numerical proportion of the urban and rural population, and a change in some structures and processes of reproduction of the population. It is worth noting that the structure of the population was uniquely improved by the level of education, which raises the value of human capital.

For many years the development of urbanization in Poland was fascinating, mainly there was a flow of population from rural to urban areas. In rural areas of the country, however, there remained a significant percentage of the population, and in recent years it can even be observed an increase in this part

of the population. It is worth noting that in terms of quality, it is a significantly different population than a dozen years ago. Human resources in both urban and rural areas are an important factor in development.

The introduction to the content presented in the article is the presentation of the structure of the population in Poland. Presenting the status of the population allows better visibility of the diversity of public education.

Macroeconomic aspects of human capital consider social education as one of the main factors of transformation and development of human capital (POCZTOWSKI 2007, p. 30–31). The primary objective of the study is to show the changes in the levels of education of the Polish population.

The basic time watershed is represented by the date of the general population censuses in 1988 and in 2011. This paper considers the Central Statistical Office estimates from between the census period. Necessary statistical data comes from the CSO. Also essential were the editions of the Demographic Yearbook. The Little Yearbook reports the results of the 2011 Census. They contain the necessary figures, indicators and ratios that characterize various phenomena, processes and demographic structure allowing for comparative methods used and the descriptive statistics. The authors admit that the article does not exhaust the rich range of studies devoted to the discussed topics, and is an attempt to present a synthetic description.

## **Changes in the structure of the population**

At the end of the year 1988, Poland had a population of 37 885 thousand people. Starting from 1997 to 2007, a downward trend was observed, and in the last period from 2008–2012 was again marked by a growth in the numbers. Changes are noticeable, taking into account the division into urban and rural areas. In the urban areas it was followed by a steady increase until 1991, and since 2000 we are already witnessing a steady decline in the overall state population. Details are located in Table 1.

In the year 1988, rural areas had a population of 14 698 thousand, in the following years a decline in numbers was noticed until 1991, after which there was a marked increase in 1992. But it was not a steady increase, since in subsequent years the population has been shrinking in growth again, assuming the shape of a sine wave – a process that lasted until 2000. From this year, there followed the growth of the ruralization ratio to 39.4% of the total population of the country. People living in rural areas exceeded the rate of 39% of the Polish population. It is worth noting that, as compared with highly

developed countries in Europe and other continents, it is a high indicator. Rural area have a huge demographic potential, as evidenced by indicators and ratios presented in Tables 1 and 2.

Table 1  
Polish population in the years 1990–2014

Specification	1990	1995	2000	2005	2008	2010	2012	2014
State as of 31 XII	38 183	38 609	38 254	38 157	38 136	38 200	38 533	38 479
Including								
Per 1 km <sup>2</sup>	122	123	122	122	122	122	123	123
Women in thousands	19527	19823	19717	19703	19721	19756	19884	19859
Per 100 man	105	106	106	107	107	107	107	107
Urban in thousands	23 614	23 876	23 670	23 424	23 288	23 264	23 336	23 216
In %	61.8	61.8	61.9	61.4	61.1	60.9	60.6	60.3
Rural in thousands	14 569	14733	14584	14733	14848	14936	15197	15 262
In %	38.2	38.2	38.1	38.6	38.9	39.1	39.4	39.7

Source: *Maty Rocznik Statystyczny Polski 2015* (2015).

The trends depicted above show an almost constant level of observed population density and a constant proportion of men and women. In contrast to rural areas, urban areas have not only higher rates of pre-working age population, but also a sub-population of post-working age, continually increasing. This is due to the long-term flow of young people from the countryside to the cities. The increase in the median age and general changes in the age structure of the population are a symptom of the ongoing process of demographic aging as a negative phenomenon from the viewpoint of reproduction indicators, which provide demographic forecasts.

Also, this does not positively shape the numerical relationships of people of working age and non-working age, which will have a negative impact on the declining growth of the labor force. In the structure of the non-working age population wanes children and young people and comes from the elderly population, especially in the cities. Basic statistical information is presented on the population of rural and urban areas and is the basis for verification of the level of education in these groups. The macroeconomic aspect of considering human capital takes into account education, health care and the conditions of the labor market (CIEKANOWSKI 2014, p. 137–138) as key determinants shaping the differentiation potential of the country's population.

Table 2

Changes in the Polish population by sex

Years	The median age of the population		Population age						
			Under 20		65 and higher	working age	non-working per 100 people of working age		
	men	women	total	0-14			total	pre-working	post-working
	in % total								
Total [in %]									
1990	30.9	33.7	31.8	24.4	10.2	58.7	72	50	22
1995	32.0	35.3	29.7	21.6	11.3	59.6	68	45	23
2000	33.4	37.4	27.8	19.1	12.4	60.8	64	40	24
2005	34.7	38.9	23.7	16.2	13.3	64.8	56	32	24
2010	36.3	39.9	21.4	15.1	13.6	64.4	55	29	26
2012	37.0	40.5	20.8	15.0	14.2	63.9	57	29	28
2013	37.4	40.9	20.5	15.00	14.7	63.4	58	29	29
Urban areas in %									
1990	31.5	34.2	30.8	23.3	9.1	60.3	66	46	19
1995	32.7	36.2	28.1	20.0	10.5	62.0	62	40	21
2000	34.2	38.8	25.9	17.1	11.7	63.3	58	35	23
2005	35.5	40.5	21.6	14.5	13.1	66.0	52	28	24
2010	37.0	41.7	19.6	13.6	14.0	65.2	53	26	27
2012	37.8	42.2	19.0	13.9	15.0	64.2	56	26	30
2013	38.2	42.6	18.8	13.9	15.7	63.5	58	28	31
Rural areas in %									
1990	30.1	32.6	33.4	26.2	12.0	54.6	83	56	27
1995	30.9	33.6	32.3	24.3	12.6	55.6	80	53	27
2000	32.2	34.9	30.9	22.2	13.4	56.8	76	49	27
2005	33.6	36.2	27.1	18.9	13.6	60.2	65	39	25
2010	35.2	37.4	24.3	17.0	13.0	63.2	58	34	25
2012	35.9	38.1	23.6	16.8	13.7	63.4	58	33	25
2014	36.2	38.4	23.1	16.7	13.3	63.4	58	32	26

Source: *Rocznik Demograficzny 2014* (2015).

## The nature and components of human capital

The main reason for the development of human capital theory was an attempt to solve the problem of imperfectly described growth formulas (DOMAŃSKI 1993, p. 14). When it was discovered that a significant portion of the income of the United States cannot be explained by an increase in tangible

capital or labor, it initiated a search for different factors which can be attributed to the rest of the existing value. The search for explanations were made first by G.S. Becker and T.W. Schultz. The first one in the preface edition of his book from the year 1975 admits that it took him a quarter of a century (BECKER 1975, p. 8)<sup>1</sup>. Their creative contribution to the solution of this problem has gained the highest recognition, both researchers in their later years received the Nobel Prize. Their creation of the theory of human capital is treated as a tool to facilitate the understanding of economic growth.

The authors mentioned by S.R. Domański are considered by him as coauthors of the theory (DOMAŃSKI 1993, p. 10). Similar statements are also included inside the report by J. Mujżel, T. Kowalik, B. Fiedor and E. Mączyńska developed for the Socio-Economic Strategy at the Council of Ministers (*Kapitał ludzki...* 1998, p. 14–15). Both creators of the theory, as well as other scientists, mention many other authors who have previously engaged in some of the components of this theory. S.R. Domański mentions in this context a few Poles: S. Staszic, K. Grabiński and F. Skarbek. Among the many foreign authors who have made a contribution to the development of human capital theory, many are from the seventeenth century. They are most often mentioned by W. Petty, A. Smith, J.B. Say, F. List, J.S. Mill, A. Marshall, I. Fisher (WRONOWSKA 2005, p. 123–124).

A very important issue is the definition of human capital and its components. According to J. Grodzicki and G. Łukasiewicz, the first time the concept of human capital in the literature was used was by T.W. Schultz in 1961 (GRODZICKI 2003, p. 46, ŁUKASIEWICZ 2009, p. 16). An article published in the *American Economic Review* initiated a series of further publications in which that term was initially used only in the macroeconomic context. The use of the term human capital was used in explaining the high economic growth that occurred in many countries after World War II. It was noted that tangible investments were unable to produce the large increase that was observed. The factor that allowed the appearance of economic growth was described as investments in human capital (LIPKA 2010, p. 23–24).

The definition formulated by T.W. Schultz, who cites in his article W. FLORCZAK (2007, p. 651), is “through human capital in a broad sense is understood all the features of psychophysical entities, such as innate abilities, knowledge, education, skills and experience, health status, cultural level, socio-economic activity, beliefs, etc. that impact directly or indirectly on performance and which are inextricably linked with man as the carrier of these values”.

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<sup>1</sup> Compare: (SCHULTZ 1976, p. 7).

In the literature many definitions are distinguished. They can be divided into two groups, the first is based on identifying the components of human capital. The second group of definitions has a holistic character and is based on the ability to build value by the capital owner (BARON 2007). The theory of human capital, despite a high level of development, has not been worked out so far into one definition in this socio-economic category. Human capital is considered to be a resource and a capability, at individual and organizational levels. Individual human capital can be acquired by attracting and selecting employees with the right skills and experience. It can be developed through learning (INGHAM 2007, p. 103). This intangible asset is given by the genetic characteristics of the population once and for all, but it can be increased through investments called investments in people.

Existing definitions can be adopted as the basis for discussion on the role and importance of human capital in growth theory. Many authors emphasize the status of certain components and understand human capital as the knowledge and skills of a certain value as a source of future earnings or satisfaction, which is renewable and is constantly enlarged as human potential. Of course, many distinguished writers stand on human capital in the broad sense and in the strict sense.

G. Łukasiewicz. takes into account the so-called cost approach, He believes that human capital is accumulated in human abilities, knowledge, health or skills, to whose achievements are needed cash outflows. The capitalized sum of these expenses result in a unit value of human capital. K. Makowski lists two basic methods of estimating the size of human capital, taking into account several variants. These are: a method of capitalization based on the expected income stream, a method involving the production costs of human capital and its various components. The various aspects of the definition of human capital are only a synthetic presentation of the basic theory.

Human capital may be smaller or larger to a great extent independent of the demographic potential of a society. The human capital does not change exactly as the population of a country or region changes (DOMAŃSKI 1993, p. 19, ŁUKASIEWICZ 2009, p. 17). There may be a numerically weak country, which has powerful human capital. Thus, the value of accumulated human capital in a given society does not need to be positively correlated with the amount of the population. This is due to the fact that human capital considers quantitative and qualitative aspects.

Based on some of the listed definitions, it could be deduced that the human capital of the population grows infinitely. That is not so. Analogous to tangible assets, human capital in the process of management is also consumed, which is the result of transferring a portion of its value on effect. A distinction is made between the biological and moral use of human capital. In considering the issue

only as a biological phenomenon, transient depreciations stand out, the partial and total loss of the ability to work. An even more dangerous phenomenon of depreciation is the recapitalization of the human body, resulting from the nature of its exploitation, especially in the long-term. The depreciation can also take a different form, among others absolute and relative recapitalization stands out.

A part of the definition is demographic investments. There are many entities implementing this type of investment. There is a fairly well-defined catalog of measures for investment purposes, as well as also some controversy regarding the various expenses that can be considered as investments in personnel.

S.R. Domański defines investments in personnel as all activities that affect the future financial and physical income by increasing human resources (DOMAŃSKI 1993, p. 19). Of all the activities which imply certain expenses, extract the ones in the nature of consumption. It is necessary to take into account the effect they bring. Domański wrote that “if the effect of this is to increase the productivity of the human factor, these expenditures are investments, but if the growth of pleasure, utility, which is the ultimate goal, expenditures are included in the consumption process”.

Research on human capital issues can be comprehensive, which means that it covers all issues or selected ingredients. They may be conducted at the micro, meso and macro levels. The Report of the Socio-Economic Strategy of 1998, determined that in narrow terms human capital is recognized as embodied in the quality features available in the economy of the labor force effect of investment in education and training (*Kapitał ludzki...* 1998, p. 14). The main objective of this paper is to present changes in the level of education of the Polish population. According to some authors, the narrow interpretation of human capital is the result of investment in education and training embodied in the quality characteristics of the labor force (CZYŻEWSKI 2001, p. 6). It can be assumed that nowadays expenditure on education and training are treated together, so also accept it authors of this paper.

## **Polish population by level of education**

“Education in every sense is one of the fundamental factors of development” (OZTURK 2001). It also manifests a great impact not only upon productivity, but also on poverty, trade, income distribution, generating a basis for development, at the microeconomic and the macroeconomic level (DEMYEN 2015, p. 54). In the process of socio-economic development and the progress of civilization, the level of education of the population plays an important role.



The results of the subsequent censuses, as well as estimates made for the periods between the census periods shows that the overall level of education of the population is improving.

Table 3  
Polish population aged 13 and older by education level in 2002 and 2011

Specification	Year	Total in %	Urban areas	Rural areas
Total	2002	100	100	100
	2011	100	100	100
Higher education	2002	9.9	13.2	4.2
	2011	17	21	9.9
Post-secondary	2002	3.2	3.9	1.9
	2011	2.6	3.2	1.6
Secondary together	2002	28.3	33.4	19.6
	2011	29.0	32.1	23.9
Vocational	2002	19.7	22.3	15.3
	2011	17.2	18.5	15.1
General secondary	2002	8.6	11.2	4.3
	2011	11.8	13.6	8.9
Basic vocational	2002	23.2	20.4	28.0
	2011	21.7	18.6	26.5
Primary completed	2002	29.8	23.9	39.7
	2011	18.3	13.7	25.6
Remaining population	2002	5.6	5.1	6.6
	2011	6.5	6.6	6.4

Source: *Rocznik demograficzny 2014* (2015).

It should be noted and reported in the statistical tables that they are not fully comparable. Table 3 includes people aged 15 and over, while in the next table the age limit was lowered to 13 years. It became so because of the education reform in 1999 introducing a 6-year primary school and three years of lower secondary school. The census of May 2002 did not include graduates from high school from June 2002. For this reason, in 2002 data is given in two versions.

The data in Table 3 shows that there has been a considerable increase in the proportion of the population with post-secondary and secondary education and higher education. Since 1988, there have been minor changes in the percentage of people with vocational education. In contrast, there has been a reduction in the share of the population with basic education not completed and no primary education has been identified as the remaining population.

If the data from 1988 we take as 100 in the period up to the next census in 2002, the population aged 15 and older has increased to 110.7%. The highest growth during this period occurred in relation to the population with post-secondary education. A significant increase can also be spotted for people with higher and secondary education, especially general education. At the same time, the percentage of the population with primary education has been reduced and is called "others". The direction of change should be assessed very positively.

Given the nature of socio-economics and the diverse structure of the population living in villages and cities, considerable differences can be seen in the level of education of the population of the two communities. Also, the dynamics of change in this regard is unevenly shaped.

It can be noticed that there is a difference in the labor market in these two environments. It's perfectly understandable if we take into account the fact that rural areas do not have functioning universities, courts, prosecutor's offices, theaters, etc. Institutions which obligatorily need to employ persons with a university degree and diplomas are also absent from rural settings. Thus, it can be simple that when it comes to the workforce in rural areas, there is relatively more demand for workers with vocational, secondary and post-secondary education. The realistic state of the two communities in terms of educational levels, are shown in tables 3, 4 and 6.

The data contained in these tables show that the urban areas actually focused relatively more personnel with higher, secondary and post-secondary education. Analysis of growth rates between the census periods indicates a relatively high increase in people with post-secondary and secondary vocational education. At a similar level were indicators of population with higher education and secondary education. Of interest is the relatively large increase of population with unfinished primary school or without primary education.

On the other hand, it should be positively assessed that there was an increase in the level of education in rural areas. The share of the rural population aged 15 years or older with higher education has doubled and has increased from 1.8% to 4.3% with secondary education increasing from 12.1% to 20.4% of vocational from 24.2% to 29.2%. At the same time, there has been a reduction in the percentage of population with a completed primary education, as well as those classified as other.

CSO estimates made after 2002 include reducing the lower age limit to 13 years and the recognition of lower secondary education. Table 4 shows the results that inform about further positive changes in both urban and rural areas.

Table 4

## Polish population by level of education

Specification		Total	Including education				
			higher	post-secondary and secondary	basic vocational	lower secondary	completed primary
In thousands							
Total	2002	32 435	3203	10 551	7540	x	9652
	2005	33 008	4699	10 908	7590	1802	7182
	2010	33 273	6408	11 176	7296	1780	6003
	2011	33 505	5693	10 573	7260	1651	6133
Males	2002	15 550	1448	4290	4679	x	
	2005	15 814	1968	4793	4669	940	3148
	2010	15 912	2555	5079	4465	981	2607
	2011	16 075	2375	4680	4490	883	2644
Females	2002	16 886	1755	5912	2860	x	
	2005	17 194	2371	6115	2921	862	4034
	2010	17 361	3852	6097	2831	799	3397
	2011	17 429	3318	5290	2771	768	3489
In %							
Total	2002	100	9.9	31.5	23.2	x	29.8
	2005	100	14.2	33	23	5.5	21.8
	2010	100	19.3	33.6	21.9	5.3	21.8
	2011	100	17.0	35.3	21.7	4.9	18.3
Males	2002	100	9.3	27.6	30.1	x	28.0
	2005	100	12.4	30.3	29.5	5.9	19.9
	2010	100	16.1	31.9	28.1	6.2	16.4
	2011	100	14.8	29.1	27.9	5.5	16.5
Females	2002	100	10.4	35.1	16.9	x	31.4
	2005	100	15.9	35.6	17.0	5	23.5
	2010	100	22.2	35.1	16.3	4.6	19.6
	2011	100	19	33.8	15.9	4.4	20.0

Source: *Rocznik demograficzny 2014* (2015).

A positive occurrence is a clear increase in the proportion of people with higher and secondary education. Basically, at a stable level the proportion of people with secondary and post-secondary education is holding. The downward trend can be observed in relation to the population with vocational and completed basic education. The relatively higher share of young people with lower secondary education in rural areas should be assessed positively. An undesirable state is a delay in the completion of primary school for children living in rural areas, especially for girls. It should be emphasized that generally in all years and types of research the percentage of women graduates in universities and secondary schools and post-secondary education are much higher than for men. This applies to both urban and rural areas.

The latest data of the structure of the Polish population according to educational level as provided by the census from year 2011.

Table 5  
Population aged 13 and more by level of education and gender

Level of education	2002				Male		Female	
	in thous.	in %	in thous.	in %	2002	2011	2002	2011
Total	32 435,4	100	33 505,3	100	100	100	100	100
Included								
Higher	3203.6	9.9	5690.2	17.0	9.3	14.8	10.4	19.0
Post-secondary and secondary	10 208.4	31.5	10 573.7	31.6	27.6	29.1	35.1	33.8
Basic vocational	7539.8	23.2	7260.7	21.7	30.1	27.9	16.9	15.9
Lower secondary and Completed primary	9651.8	29.8	7788.4	23.2	28.0	22.0	31.4	24.4
Basic incomplete and no education	1180.1	3.6	457.1	1.4	3.0	1.0	4.3	1.7

Source: *Raport z wyników Narodowego Spisu Powszechnego Ludności i Mieszkań 2011* (2012, p. 58).

A conversely shaped situation is with regard to basic vocational education. In this case, more men than women completed this level of education. The decline has been for further shares of boys and girls completing primary and lower secondary schooling. In this case, the girls performed better than boys with regards to indicators. While the opposite situation can be noticed in the case of people not completing primary school or having no school education. Here slightly higher rates apply to women. Another area of analysis is the structure of the educational level for verification of rural and urban populations.

Table 6  
Population aged 13 and more by level of education, gender and place of residence

Level of education	Urban areas			Rural areas		
	total	male	female	total	male	female
	in %					
Higher	21.3	19.4	23.2	9.9	7.7	12.1
Post-secondary and secondary	35.2	33.1	37.3	25.5	23.1	27.9
Basic vocational	19.0	24.2	13.7	26.6	33.6	19.6
Lower secondary and Completed primary	17.9	16.6	19.2	31.6	30.0	33.3
Basic incomplete and no education	0.9	0.7	1.0	2.1	1.6	2.7

Source: *Raport z wyników Narodowego Spisu Powszechnego Ludności i Mieszkań 2011* (2012, p. 60).

It can be seen that in the urban areas the parental level of education is average, calculated together with post-secondary education. Its share has, however, decreased slightly from 38.5% in the year 2002 to 35.2% in the year 2011, which was shown in the last census. In next place, in terms of value indicators, is the population with higher education, vocational and completed primary and post-secondary education, and it is worth noting the different proportions of men and women. A notable observation is the significant decrease in the percentage of persons with primary education not completed and no primary education.

Table 7  
Population aged 13 and older continuing education by level of education and the learning model

Level of education	People who continue their education		
	total	full time courses	evening classes, distance learning
	in %		
Total	100	100	100
Higher with a masters degree. doctorate or equivalent	4.6	1.6	13.9
Higher with engineering degree. bachelors. or certified economist	8.1	4.2	20.2
Secondary vocational. post-secondary	7.3	2.7	21.9
Secondary general	21.2	10.0	31.6
Basic vocational	1.9	0.4	6.6
Primary and lower secondary	54.7	70.2	5.9
Basic incomplete and no education	2.2	2.9	0.0

Source: *Raport z wyników Narodowego Spisu Powszechnego Ludności i Mieszkań 2011* (2012, p. 62).

In rural areas, completed primary education continues to dominate. Its total share with lower secondary education increased in 2011 to 31.6%. In second place was people with vocational education and in third were people with an average post-secondary education. Also, in the rural areas further differentiation of educational level may be formed by gender. Men can be characterized with the relatively highest basic education, while women were characterized mainly by completed primary education and lower secondary education.

Analyzing the educational level of men and women on the basis of census results, it can be noted that in both urban and rural areas, women more often than men have a university degree, as well as secondary and postsecondary education.

A positive development is that a large proportion of Poles who have completed 13 years or more still continue their education at a given level. The 2011 census provided information that these people number more than 5 million. Among which more than 3773.2 thousand study in full time courses.

As established on the basis of the Census, graduates of elementary and secondary schools continue their studies mainly in full time courses, which is 70.2% of the total number.

In turn, graduates of secondary schools participate in evening classes or distance learning. This method is also an option for graduates of further education.

Among those continuing their education, a higher percentage are urban dwellers. Nearly half of the men and women who continue their studies do it on a full time basis, and this applies to both urban residents and rural areas. Given the people who continue their education in absentia, it can be seen that often women choose that way of raising their level of knowledge.

Regardless of the mode, gender or residential environment, the most important thing it is that many people continue their studies. According to Eurostat, the proportion of people aged 18–24, which have at most a lower secondary education and do not continue learning in Poland was one of the lowest among EU countries. In the future, this will have an impact on further growth in the value of human capital in the country. It should be noted that there are large disparities in the quality of education in the country, which means that the increase of knowledge will not be identical for different regions or graduates of higher education units. This could be a subject for further consideration, which may allow a more precise determination of the contribution of the level of education as a factor that affects the human capital value.

## **Conclusion**

The macroeconomic approach to human capital is based among others on the verification of levels of public education. Aspect macro allows an examination of education to be performed on the scale of an entire society or at the individual level (MATUSIAK 2009, p. 311, ŁUKASIEWICZ 2009, p. 23). This paper is based on the available statistical data and presents changes in the number and structure of Polish society. This paper shows changes in the level of education of the population in the years 1988–2011, taken on a percentage basis.

The demographic situation in Poland in the last two decades has fundamentally changed. In addition to positive developments, elongation of the

average duration of education, and improvement of population quality in terms of the level of education have been observed. Conditions conducive to the development of education contribute to the increase of knowledge and skills of the members of the community. The human capital recovered subsequently by employers and adequately developed by them leads to improving the competitiveness of enterprises, and thus contributes to the macroeconomic development of the region and the whole economy by improving the level of competitiveness (JARECKI 2003, p. 192–193).

Unfortunately, the evaluation of the presented process is largely dependent on the level of quality of the human capital which is generated in a given society by a functioning educational system. It is therefore advisable to implement changes, which not only increase the percentage of the population with higher levels of education, but allows for the creation of appropriate specialization of human capital.

Further verification based only on the state of quantitative data from the Demographic Yearbook of Poland from the year 2014 reveals some disturbing factors, the occurrence of which will not help to build the high potential of the society. Among the major trends characteristic of Polish society can be distinguished: the declining birthrate, the progressive aging of the population, declining spatial mobility, increasing disintegration of families, persistent negative net international migration, and high unemployment (*Rocznik Demograficzny...* 2015).

Increasing the level of formal education in the society proves that there is a greater awareness and the need to develop among the Polish population. Although this is a very desirable phenomenon and according to the theory of human capital education is part of the macroeconomic consideration of this category in the initial stage of building a conscious path of development by society, in order to increase the level of human capital it is necessary to supplement the impact of macro-scale in the areas of healthcare and increase the compatibility of human potential in the labor market. Formal education needs to increase its specialization and improve the level of cohesion for the needs of enterprise.

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