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4.5. Education and human capital

Izabela Grabowska, Dorota Weziak-Białowolska, Irena E. Kotowska, Tomasz Panek

4.5.1. Educational status of household members

This assessment of educational activity of the population is made on the basis of the extent of use of a specific educational service within the school system (education in schools in full-time, evening or extramural mode, all postgraduate studies) or outside it. The percentage of persons in a particular age group using a specific form of educational service is the basis for assessing the extent to which such form of service is used. This measure for educational services provided within the school system corresponds to the schooling rate. For the services addressed to children aged 6 and below it is equivalent to the coverage rate and is used for assessing the scope of institutional care for children, and in the case of persons aged 25 and above it may be used to assess their educational activity. While analysing the educational activity of adults (persons aged 18 and above), also the forms of educational activity and the status of respondents on the labour market are taken into account.

In the case of schooling rate, *Diagnosis* values differ from those provided by the Central Statistical Office (GUS), as net schooling rate indicators. The *Diagnosis* indicator includes all educational activities, both those at school and beyond it, as opposed to that of GUS, which apply only to study at school. Moreover, the GUS reading is from 31st December of a given year, and not the given moment of study as is the case here.

4.5.1.1 Educational activity of household members

Table 4.5.1 shows the indicator values of the use of educational services for the years 2000, 2003, 2005, 2007, 2009, 2011 and 2013, where in the research from 2003 also the educational activity outside the school system was taken into account, which has has an impact on the assessment of adults' educational activity. In the comments, we focus on the results of the last four waves and examine the changing trends between 2000-2013.

The results of 2013, like in 2011, demonstrate an important increase in the use of childcare and education in kindergartens and nurseries (33.6% compared to 29.1%). Up to 2009, apart from in 2003, only one in five children aged 6 and below used these services in the country as a whole. The improved access to these services occurred in all place of residence classes, especially in middle-size and small towns from 200,000 to 500,000 inhabitants by 6.7 p.p., from 100,000 to 200,000 by 15.2 p.p. and below 20,000 by 8.5 p.p. This indicates a change in dynamic for place of residence class on 2011 when the greatest rise was noted in the largest cities of over 500,000 by 17% in comparison with 2009 and in rural areas by 7% compared to 2009. However, despite the changes observed in 2013, still the largest share of children attending playschool and nurseries was recorded in towns of over 500 thousand residents at 49.1%. Children in the towns still spent time in educational-childcare units more often than children in rural areas where only 21.9% in 2013 and 20% in 2011 from this age group had access to this type of care (in the past this fluctuated between 8% and 11-13%).

Contrary to the results of the research form 2011, which indicated a marked narrowing in the gap between urban (including the largest cities) and rural areas between 2009 and 2011, in 2013 there was a widening in the spatial access to care and educational services between towns (even in the case of small towns) and rural areas, similar to that between 2000 and 2009. There was a rise in the number of births observed in Poland between 2004 and 2010 as a result of baby boom mothers postponing pregnancy for many years, which further increased the demand for places in nurseries and kindergartens. The market in terms of such services in the towns, particularly in the case of private service providers, adapted to the higher demand faster, which in the previous study periods additionally widened the territorial discrepancies in availability of these services. In 2011, this considerable growth in use of childcare offered by kindergartens and nurseries was undoubtedly connected with the accessibility of funds from the European Social Fund under the Human Capital Operational Programme offering co-financing for kindergartens especially in rural areas. It is however difficult to assess the influence of other state intervention in this field, i.e. the implementation of the Act of 4 February 2011 on care of children aged three and below (Dz.U. of 2011. no. 45. item 235) on the basis of the study data available.

		Place of residence class								
Educational status	Towns	Towns of	Towns of	Towns of	Towns	Dural	_ Total			
	>500k	200k-500k	100k-200k	20k-100k	under 20k	areas				
	25.10^7	23.90	24.20	21.20	23.20	23.50	23.30			
	25.30^{6}	25.70	24.50	22.30	24.00	24.20	24.10			
	26.60^{5}	28.00	25.00	25.10	25.30	25.60	25.80			
Total percentage receiving	27.09^{4}	27.26	27.59	25.17	27.26	26.61	26.60			
education services	28.20^{3}	27.88	29.55	27.85	30.03	26.84	27.94			
	25.43^{2}	23.78	26.73	23.97	25.76	22.22	23.91			
	27.02^{-1}	26.41	24.01	27.17	27.39	24.64	25.94			
	49.10	44.60	46.10	33.80	41.30	21.90	33.60			
	47.90	37.90	30.90	30.00	32.80	20.00	29.10			
	31.50	32.10	27.00	21.70	23.00	12.60	20.50			
Children aged 0-6 at nursery or	25.92	25.19	22.80	22.39	18.40	12.09	18.75			
kindergarten	24.17	31.23	20.46	32.12	20.84	10.78	19.77			
	19.13	19.52	20.42	19.93	12.18	7.74	13.51			
	31.16	22.33	14.51	33.71	27.34	12.58	21.40			
	85.20	92.00	94.30	87.80	89.00	90.30	89.70			
	91.60	90.00	87.50	88.70	92.20	91.60	90.70			
	88.00	89.00	93.50	91.40	92.20	89.90	90.50			
Children aged 7-15 at school	96.37	97.41	97.36	99.03	96.98	98.75	98.15			
6	92.80	91.95	92.64	95.97	95.55	93.22	93.92			
	76.74	77.07	81.36	78.27	79.88	80.14	79.23			
	99.41	98.74	99.17	98.79	98.17	97.89	98.48			
	93.60	97.40	96.10	93.80	93.90	93.50	94.10			
	98.10	93.10	86.40	98.20	91.20	92.50	93.50			
	96.50	94.70	97.10	97.10	96.40	94.20	95.40			
16-19 year-olds at school	97.43	98.92	93.54	91.66	98.65	95.09	95.29			
	92.78	93.67	94.34	91.69	89.68	92.93	92.39			
	93.67	91.07	93.85	89.12	94.01	87.74	90.39			
	89.40	97.63	86.30	90.03	87.55	85.43	88.47			
	78.80	75.30	63.10	61.20	52.50	48.00	57.60			
	73.50	72.80	57.10	61.20	60.10	49.40	58.80			
20-24 year-olds receiving	83.00	72.60	66.90	65.80	58.00	47.60	60.90			
education services within and	80.23	72.82	57.50	64.64	62.75	49.23	60.76			
outside the school system	70.44	67.61	63.80	57.34	53.64	50.76	57.51			
	61.64	61.51	61.02	53.92	46.33	38.98	49.90			
	61.06	58.22	23.93	45.18	45.77	25.99	40.55			
	20.20	16.90	13.30	14.40	16.80	8.50	13.30			
	26.80	24.50	10.50	13.80	16.60	9.00	15.10			
25-29 year-olds receiving	28.70	26.30	21.20	19.50	16.40	11.40	18.40			
education services within and	34.39	19.01	26.88	16.80	15.75	8.53	17.19			
outside the school system	24.68	15.55	21.66	12.29	18.30	8.90	14.08			
	18.29	17.32	14.99	17.01	10.02	7.56	12.69			
	16.69	18.63	2.44	18.25	8.49	7.11	11.45			
	9.20	8.30	2.60	3.70	5.40	2.70	4.75			
	7.10	6.80	6.90	3.40	6.00	1.90	4.30			
30-39 year-olds receiving	7.50	10.80	8.60	7.60	6.90	3.80	6.20			
education services within and	11.61	8.85	10.84	8.83	8.01	2.52	6.99			
outside the school system	11.09	8.14	4.32	5.59	5.92	1.84	4.98			
	8.10	9.64	9.01	4.64	4.88	3.19	5.44			
	4.70	2.53	5.35	3.20	1.88	0.32	2.29			
	3 10	2.30	2.00	1 30	1.00	0.80	1.60			
	3 20	2.20	2.30	1.00	0.80	0.50	1 30			
39+ year-olds receiving	2.70	2.40	1.50	1.40	1.50	0.90	1.50			
education services within and	4.62	2.52	2.88	1.40	1 36	1.08	1.90			
outside the school system	2.10	0.90	1.77	1.30	1.45	0.93	1.20			
suiside die sensor system	2.45	0.85	2.03	0.85	2.22	0.55	1.20			
	0.47	0.92	0.33	0.80	1.29	0.32	0.61			

Table 4.5.1. Household population by educational status and place of residence (percentage of a given age and place of residence receiving a specific educational service) in 2000-2011 (in %)

⁷ survey results from 2013

⁶ survey results from 2013 ⁵ survey results from 2009 ⁴ survey results from 2007

³ survey results from 2005

² survey results from 2003

¹ survey results from 2000

Moreover, as in previous years, the majority of children are placed in public nurseries and kindergartens in 2013, with the public education share at 89.7% as in 2011. In 2013, this varied from 83.7% in the towns of more than 500,000 to 92.4% in rural areas compared to 90.4% and 93.1% in 2011 respectively. The importance of non-public units rose quite steadily up to 2011, while 2013 saw a marked retreat in the largest towns with a stabilization of their share in terms of the country as a whole.

Despite these positive changes, availability of this form of educational and care service in Poland is still among the lowest in the European Union. This on-going deep lack of institutional childcare in rural areas may be a factor which limits the increase in women's professional activity in rural areas and their employment outside the farming sector in particular. In the light of the necessary changes in the structure of employment among the rural population, in order to shift some part of labour force outside the farming sector, more institutional childcare availability in rural areas seems particularly important. Moreover, it is commonly underlined that high quality childcare services, available to parents for an appropriately low price, are an effective solution to educational and economic inequalities (cf.. for instance. Kotowska. Sztanderska. Wóycicka 2007. Szukalski. Warzywoda-Kruszyńska. 2005).

As in previous years, there were no very significant territorial differences observed in education availability for children aged 7-15 in 2013. In 2013, at the national level and in rural areas around 90% of children at this age were in education, which is a result similar to that of 2011. In the towns this percentage was between 85% and 94% while in 2011 this was between 88% and 92% respectively. In comparison with the results from the 2005 and 2007 waves, a slight decrease in the level of schooling among children from this age group was recorded as was already observed in 2009, which can however be explained by methodological factors. 7 year-olds between January 2013 and the date of study are included in the 7-15 year schooling rates group even though they can still go to playschool. After adding up playschool children in this group as well as that of the schooling rate indicator, territorial differences almost disappear and the share of children in both forms of education was around 97-99% in 2013. This procedure yielded similar results in previous years with the exception of 2003.

The educational reform of 1999 had an influence on the 2003 indicators. At that time, this age group included not only children and youth from primary schools but also from lower secondary schools for the first time. The significance of private schools was not great in this age group in all study rounds (no more than 10-12% in the largest towns), and this further fell in the last round.

In contrast to the results from the previous research waves, in 2011 and 2013 significant territorial differences in schooling of 16-19 year-olds were observed (both as regards full-time, evening and extramural education, though the direction of change in the two periods were different). In 2011, the share of this age group attending any type of school increased slightly in the towns of more than 500,000 by 1.6 p.p. compared to 2009 and 20,000-100,000 by 1.1 p.p. to around 98%, while it fell in other towns types and in rural areas, with the greatest recorded for medium-sized towns (100,000-200,000 residents) to around 86.4% by 10.7 p.p., while in rural areas the fall in the rate of youth attending various types of schools was lower by 1.7 p.p. reaching 92.5% in 2011. These changes translated into a fall in the use of educational services in this age group in 2011 by 1.9 p.p. to 93.5%, which halted a growing trend observed in previous years. In 2013, compared to 2011, the share of young students in towns of over 500 thousand fell by 4.5 p.p., while in towns of 200 to 500 thousand, 100 to 200 thousand and in the smallest towns of less than 20 thousand it rose by 4.5 p.p., 9.7 p.p. and 2.7 p.p. respectively. In rural areas there was also a rise of 1 p.p. This marked growth in the educational service indicator in middlesized and smallest towns balanced out that noted in the largest towns and contributed to the small overall growth of just over 0.6 p.p. Furthermore, the low share of non-public schools for this age group is still noteworthy. No more than 3% of young people attended non-public schools regardless of place of residence class, which is much fewer than in the case of 7-15 year-olds.

Adult educational activity is the participation of persons aged 18 or more in various forms of education. However, due to the age groups assumed above, our analysis to which we refer below, concerns only the over-20s.

The territorial discrepancies in access to educational services as described for 7-19 year-olds are considerably different in the case of educational activity of persons in older age groups. In 2013, the slight falling tendency in the share of persons aged 20-24 at school and outside the school system slightly decreased by 0.8 p.p. compared to 2011 and remained at 57.6% (58.8% and 61% in 2007 and 2009 respectively). On the other hand, the use of educational services in this group in terms of territorial distribution changed significantly. In the towns with more than 500,000, between 200–500 thousand and from 100 to 200 thousand, the share of educational service rose by 5.5 p.p., 2.5 p.p., and 6 p.p.

respectively, which was contrary to the falling tendency previously observed (bigger towns and towns of 100–200 thousand) or growth after the stabilisation period (towns of 200–500 thousand). In towns from 20 to 100 thousand, the indicator of the use of educational services stabilized after earlier falls and in smaller towns of fewer than 20,000, and similarly in rural areas it fell by 7.6 p.p. and 1.4 p.p. respectively. To sum up, as far as the territorial differences in the use of educational services decreased to the level observed in the first half of the decade, this positive trend was reversed in 2013. At this level, the role of non-public units is more visible as in 2013 16.2% of students attended such units in the largest towns (15.6% in 2011) in comparison to 11.2% (11.9% in 2011) in rural areas.

It should be underlined that some rising differences in the educational activity of men and women in this age group are emerging. Women study visibly more often than men (68.7% of women in 2013 in comparison to 47.9% of men in 2013). The growing tendency of educational activity among women is gradually slowing (68.1% in 2011, 67% in 2009 and 63% in 2007), however, the on-going decrease in educational activity of men aged 20-24 (52.5% in 2011, 55% in 2009 and 57% in 2007) increases the educational service gender gap.

There are visible differences in the educational activity of women and men aged 20-24 in terms of their place of residence. In 2013, women aged 20-24 in urban areas used educational services to a greater extent in comparison with 2011, unlike women in rural areas. For the cities, the relevant rate fluctuates between 66% and 92% depending on their size (80% in 2011), returning to the rising tendency observed in earlier study rounds (in 2009 64-87% and in 2007 60-84%). In rural areas the share of women using educational services decreased from 60.8% in 2011 to 59% in 2013 (in 2009 54.5% and in 2007 54%) thus increasing the gap between women in rural areas and towns in terms of educational services. Among men in towns who use educational services in the school system and outside the indicator is from 50.5% to 70%, and is, as opposed to that for women, lower than results for 2011 when the share ranged from 54.1% to 72.9% (in 2009 51-81%. in 2007 57-81%). Just like for women, in the countryside there was a fall in educational services use from 40.9% in 2011 to 38.5% in 2013 (42% in 2009 and 43% in 2007), which translates into a fall in spatial variation of educational activity of men with low levels of educational service indicator. Undoubtedly, the increased educational activity of women in towns is a positive phenomenon. However, its fall in the countryside for both genders and for men in towns is most concerning and the causes require deeper analysis. The persistent decrease in educational activity of men both in the towns and in rural areas has widened the gender gap for educational activity particularly in rural areas.

The extent of educational service use is significantly lower in the next age group as 25-29 year-olds participated less than two years before, which means a continuation of the fall noted after 2009. In 2011, the share of 25-29 year-olds actively using educational services amounted to 13.3% compared to 15.1% in 2011. This change is a result of mainly the lower rates for towns of over 500 thousand inhabitants (a fall of 6.6 p.p.), for that of 200 to 500 thousand by 7.6 p.p. and rural areas by 0.5 p.p. while the remaining town types noted a minor rise. The educational service indicator did not exceed 20.2% in towns, and in rural areas it amounted to only 8.5%. Territorial differences in educational activity in this age group remained, especially in terms of urban to rural areas, while relations between the rates for towns changed with lower results in largest towns.

The retreat from educational services among 24-29 year-olds applies to men and women, though the gap to the disadvantage of men remains at 15,4 % of women in 2013 and 18,1% in 2011 compared to 11,7 % of men in 2013 and 13.4 % in 2011 with 19% of women and 17% men in 2009 and 2007 respectively. This age group is characterised by highest female fertility, which may limit women's educational activity and increase men's motivation to work and gain income. Territorial disproportions continue to grow as the percentage of women in rural areas aged 25-29 actively using educational services is 3.1 times lower than the highest percentage for towns (2.75 times in 2011 and 2.5 in 2009), which is between 7.6% and 27.2%. In the case of men, the disproportions between towns and rural areas are also high, although smaller than for women, and lower than in the previous survey wave with only 8.6% of inhabitants from rural areas (in 2009 and 2011 10.4%, in 2007 9%) using educational services within the school system or outside it, compared to 10%-19.2% from towns (7.8%-28.9% in 2011, 17%-26% in 2009 and 13%-35% in 2007). Largest and smallest towns stand out negatively in the case of men and medium towns of 100-200 thousand residents for women.

Territorial differences in educational activity are present among people aged 30-39. In order to maintain a comparable size of sample in relation to the age groups analysed above, the 30-34 and 35-39 year-olds have been presented together. However, it is the group aged 30-34 that has the decisive influence on the indicators discussed below. 30-39 year-olds used various types of educational services

2.8 times less often than 25-29 year-olds (over three times that in 2011). In 2013, the share actively using educational services at this age was 4.75%, somewhat more than two years than previously mainly as a result of changes in towns of over 200 thousand residents and in rural areas. The percentage of women using educational services in this age group was 5.8%, while for men it was 3.7%

To sum up, the analysis of educational activity conducted separately for adult women and men, and from the point of view of their age and place of residence, demonstrates a continuation of the falling trend of educational service use among 20-24 and 25-29 year-olds. In the case of the first group, this should not be a worrying signal as, unlike the second group, almost 58% is active educationally. However, the relative fall in the small share of 25-29 year-olds in educational services cannot be seen as a positive development. The continued visibly growing educational aspirations of women should also be noted. However, it is also worth emphasising that territorial disproportions in educational activity refer not only to residents of urban and rural areas but also to marked differences between various types of towns.

4.5.1.2. Forms of adult educational activity

In 2013, educational activity of the over-18s took place mainly in schools or higher education at 90.1% (in comparison with 93.3% in 2011), where 86.7% attended state schools. The share of state schools clearly rises (84.1% in 2011, 83.6% in 2009 and 80% in 2007). This is connected with the age structure of the educationally active population of respondents. In 2013, around 68.1% of respondents using educational services were aged 18-24 (in comparison with 72.8% in 2011, 70.2% in 2009 and 74% in 2007), 25-29 year-olds made up 12.3% compared to 12.7% in 2011, 14% in 2009 and 11% in 2007 and only 9.6% were 30-39 compared to 7.2% in 2011, 8.7% in 2009 and 8% in 2007.

In 2011, the age structure of the group using educational services changed in relation to 2009 as the share of 18-24 increased while that of 25-29 and 30-39 decreased, which is a sign of the selective nature of the process of continuous training among adult persons in relation to age. However, in 2013 this tendency partially reversed as the share of 18-24 year-olds fell while that of 30-39 rose with a stabilization of that of 25-29 year-olds.

Among the over-24s using educational services, there is a higher use of services outside the school system organised in the form of courses and trainings, both at work and outside the workplace, financed by various sources (personal, employers or European Union Social Fund). For 25-29 year-olds, this form of service is not that significant as only around 7.6% of persons aged educationally active used this type of training in comparison to 6.5% in 2011, 7.5% in 2009 and 14% in 2007. There was a marked rise in the next 30-39 year-old age group with 28.7% of the educationally active using these forms of self-improvement compared to 13.3% in 2011, 31% in 2009 and 30% in 2007.

In comparison to earlier survey waves, results from 2011 indicated there was a considerable drop in the use of courses and trainings among 30-39 year-olds that was higher than the general decrease in the educational activity in this age group. This suggested a shift of educational activity towards schools and higher education schools in particular. In 2013 however, this trend fell away and the share of educationally active 30-39 year-olds in courses or training returned almost to the 2009 level. The visibly lower percentage of persons aged 25-29 using educational services outside the school system in comparison with 30-39 year-olds results also from the more frequent use of postgraduate studies within the school system, a general development of services within the school system or better adjustment to the requirements of the labour market (connected with, for instance, computer skills) among younger persons. It is worth underlining that 74.3% of persons using educational services outside the school system had completed higher education in 2013 compared to 69% in 2011, 53% in 2009 and 47% in 2007 and 18.7% secondary and post-secondary education in comparison to 28% in 2011, 35% in 2009 and 32% in 2007. Thus, the process of selective use of educational services depending on educational attainment of persons aged above 24 deepened as the persons who undergo additional training mainly have higher education. Like in the previous round, the share with completed secondary education and above increased, though in the current survey the share participating in continuous education with lowest level education increased.

4.5.1.3. Educational service use and labour market status

Around 63.8% of 18+ year-olds using educational services considered in terms of labour market status were inactive as professionals compared to around 60% in 2011, 2009 and 2007, of which around 86.8% were up to 24 years of age and still in education (89% in 2011, 91% in 2009 and 95% in 2007). Among the active professionals of this age-group who also used educational services, only 13.2% were unemployed (13.6% in 2011, 8.5% in 2009 and 14% in 2007. The over 24s year-olds in education were mainly employed with relatively higher qualifications than the unemployed or inactive as professionals. Educationally engaged women over 18 were 58.3% of the unemployed and 58.5% of those in employment (65.5% and 58.2% in 2011, 54.5% and 53.7% in 2009 and 57% and 58% in 2007 respectively). The professionally and educationally active mainly used education system services as 81.7% of users were unemployed and 70.2% were in employment (87.2% and 80.7% in 2011, 93% and 78% in 2009 and 96.6% and 80% in 2007 respectively). It is worth noting the rise in importance of educational services provided beyond school in 2013 especially in the case of those in employment.

Important in the analysis of the future fate of 15-24 year-olds on the labour market is the share of those neither in employment, nor engaged in education in the state system or beyond it (i.e. NEET – not in employment. education or training). Table 4.5.2 presents the share of 15-24 year-olds in this category between 2000 and 2013.

While between 2000 and 2005, the share of professionally and educationally inactive 15-24 yearolds remained at around 13%, after a fall and stabilization at 9%, a rise to 10.2% was noted in 2013. There was a falling trend for women up to 2011 with a rise of 1.8 p.p. noted in 2013. Meanwhile, there was a clear fall for men after 2005 and in 2013 there was also a rise to 10.5%. These differences in the NEET indicator in terms of gender over the whole period analysed may be associated with the greater activity of women especially between 2000 and 2005. The 'general passivity' indicator is generally smaller for women, with women's smaller professional activity in this age group compensated for by their greater educational activity.

A breakdown of the NEET indicator by place of residence reveals differences to the disadvantage of rural areas, especially in 2013 when the gap with respect to urban areas increased by 4.2 p.p., which is a reversal of the tendency hitherto observed.

The value of the NEET indicator for Poland on the basis of 2012 *Eurostat* data also shows a falling tendency up to 2009, situating Poland in the group of European countries below the UE-27 average, which is largely due to this age-group's relatively high schooling levels.

Place of residence/gender	2000	2003	2005	2007	2009	2011	2013
Total	12.7	12.8	12.6	10.4	8.6	8.7	10.2
Women	14.7	11.8	11.9	10.7	7.8	8.2	10.0
Men	11.3	13.8	13.3	10.1	9.4	9.2	10.5
City	10.8	11.2	11.6	9.6	7.3	7.2	8.3
Rural area	16.0	15.3	14.5	11.5	8.6	8.7	12.5

Table 4.5.2. Persons inactive both as labour and in terms of education between 15-24 by gender and place of residence between 2000-2013 (%)

4.5.1.4. Educational migration

Accession to the European Union in 2004 increased the opportunities to take up university study abroad. Below we present an analysis of educational migration and returns in 2005-2009, 2007-2011 and 2011-2013. As opposed to the 2009 wave, the 2011 and 2013 *Social Diagnosis* questionnaire does not contain questions about educational migration intentions and therefore is limited only to migration for both analysed periods.

Analysis of educational migration in 2005-2009 (N=157), 2007-2011 (N=107) and 2011-2013 (N=68) is limited by the small size of respondent group. Merely 0.2% of household members went abroad for education in 2011-2013, which is similar to 2007-2011 and 2005-2009, when the share was 0.4% and 0.5%. The vast majority of those who did go abroad in 2007-2011 were 18-34 year-olds at around 61.2% in 2007 and 67.3% in 2009 and 74% between 2005 and 2009, of whom 62% were women in the three compared periods. The share of educationally motivated migrating women is greater than

differences in the schooling rate indicator for that age-group would suggest and points to a greater readiness to undertake this type of migration. Due to the high age selectivity of educational migration, further analysis will concern the 18-34 age group.

Only 0.5% of 18-34 year-olds went abroad for educational purposes in 2011-2013 compared to 0.8% in 2007-2011 and 1.2% in 2005-2009, while the figure was 0.7% in 2011-2013, 1.6% in 2007-2011 and 2.2% in 2005-2009. This suggests an immeasurably low level of educational migration, which recently has even fallen further. Because of their low number, a breakdown of respondents who emigrated for educational purposes in 2011-2013 is not presented for place of residence or migration destination.

Education migration experience suggests its minor significance, which may have numerous reasons, like for example cost or the continued lack of information on the possibilities of travel. Educational migration in fact concerns young people exclusively - mainly students from large cities attending the main academic institutions. Their educational activity abroad is often combined with work, though it is difficult to judge whether this is undertaken as a means of support or rather as an additional activity.

4.5.1.5 Summary

2013 survey information on recourse to educational services and changes in 2011-2013 may be summarized as follows:

- compared to 2011, in 2013 availability of institutional care for 0-6 year-olds increased in all place of residence classes, especially in small and middle-sized towns,
- there is little territorial variation in availability of education for 7-19 year-olds,
- educational activity among 20-29 year-olds fell compared to the previous study round with a slight rise in that of 30+ year-olds,
- the general fall in the share of 20-24 year-olds carrying on in education in the smallest towns and in rural areas and its rise in middle-sized and large towns has contributed to the widening of the already marked spatial differences in recourse to education, contrary to the changes observed in 2011,
- in 2013, 20-24 year-old women in towns and cities used educational services to a greater degree than in 2011 as opposed to those in rural areas, which increased territorial differentiation in this respect. The share of men in towns and cities at school and beyond fell in relation to 2011. In rural areas, like for women, there was a fall in educational service use and a resulting fall in spatial variation of men's educational activity with a low level of educational service use indicator,
- the general fall in share of 25-29 year-olds using educational services is above all due to a worsening of indicators for large and middle-sized towns while in the remaining town types there was a small rise, which is a reversal of the tendency observed in 2011. Territorial variations in educational activity of this age group were maintained especially in terms of urban-rural areas, while the mutual relation between towns changed to the detriment of small towns,
- in 2013, 25-29 year-old men and women used educational services more rarely than in the previous three study rounds, while the gap to the disadvantage of men remained as urban/rural disproportions for men are also large though smaller than that for women and lower than in previous study rounds. Men are at a disadvantage in the largest and smallest towns, while women from middle-sized towns do less well,
- the educational activity of 30-39 year-olds remains very low despite a small improvement,
- 39+ year-olds continue to be reluctant to use educational services,
- the process of adult qualification raising remains selective in terms of age, gender, place of residence, educational attainment and labour market status.

Social Diagnosis results continue to indicate that further adult education, considered one of the basic conditions of raising employment potential, remains narrow in scope in Poland, and the positive tendencies observed in 2009 suffered a reversal to a marked extent in 2011 and 2013. This is an alarming signal as a comparison of results for adult educational activity with the structure of educational level and civilizational skills reveals a disproportion in developmental opportunities in small towns and villages and for people over 35, especially the immobile. Differences in educational attainment, foreign languages or internet use between those younger than 35 and those older indicate a competence gap that

deepens with age. This is borne out by analysis referring to the synthetic human capital gauge in terms of age (see chapter 4.5.2).

The disparity between the demand for educational services resulting from existing educational attainment and qualification and educational activity pattern of selected groups presented above proves the necessity of permanently intensifying the adult education process in Poland. The development of various forms of educational support and qualification raising (night classes, part-time or correspondence learning, post-graduate study, courses and training etc.) as well as promotion of education services. This is especially true for the elderly and immobile.

Placing these results side by side with insights into the poor readiness of the elderly for functioning in modern society and labour market as far as human capital is concerned leads to the conclusion that keeping this group in employment requires special measures to increase their capacity to take on work.

4.5.2. Human capital

As a result of the development of the knowledge-based economy and information society, however they might be defined, there has been a shift in the focus of discussions on the conditions of contemporary processes of development from material resources to non-material resources (cf. e.g. Drucker, 1999; Kukliński, 2004; Zacher, 1999; OECD, 1998). The latter are often defined as intellectual resources. Their most important element is human capital, which is also considered to have the greatest growth potential. The size and productivity of intellectual resources are extremely difficult to measure and assess. However, without an attempt to measure them, we cannot analyse the past course of these development processes.

In the current edition of *Social Diagnosis*, the conceptualisation and operationalization of human capital of Poles was conducted as in previous years. Human capital was defined as the supply of knowledge, skills and qualifications of specific persons, groups of persons and the entire society defining their ability to work, adapt to change and also act creatively. The analysis covered the level of human capital and its diversification according to selected demographic, economic and social characteristics. It enabled an assessment of differences in the level of human capital in various socio-economic groups, as well as comparison of changes in the level of human capital between the subsequent editions of *Social Diagnosis*. In order to make comparisons over time, the same measurement method as in the previous years was applied.

4.5.2.1. Measurement of human capital

Data from *Social Diagnosis* from 2007, 2009, 2011 and 2013, served to measure human capital on the basis of the following procedure:

- a theoretical model of human capital was formulated a definition of human capital,
- a measurement model of human capital was formulated a selection of manifest variables,
- the correctness of the model aimed at measuring human capital was verified with the use of exploratory and confirmatory factor analysis,
- a composite human capital index was created using the categorical principal component analysis (CATPCA).

The methods mentioned in point 3 and 4 of this procedure have been described in more detail in the previous editions of *Social Diagnosis*, hereby we shall go back to some of the results of methods used to measure human capital.

Similarly as in the previous years, in order to measure human capital on the basis of *Social Diagnosis* 2013, information on the educational attainment of respondents aged 16 and above was gathered. This included not only number of years spent in education system, but also their civilizational competence and participation in life-long learning to gain new professional qualifications and other skills.

The selection of manifest variables resulted from the adopted definition of human capital. Over a dozen years ago this definition covered mainly educational attainment though now it is much broader. The information society and knowledge-based economy require constant updating of knowledge, skills and competences. Now, not only meeting the requirements of the contemporary labour market, but the mere functioning in society and adjustment to change requires different skills than over a dozen years ago. Such skills include for instance:

• knowledge of information and telecommunications technologies (ICT),

- ability to obtain and use information from electronic sources,
- fast communication,
- ability to use foreign languages, in particular English as it is the main language of the internet and science.

Apart from the skills mentioned above, it is important to be aware of the necessity of continuously expanding and updating one's knowledge and skills through appropriate educational activities.

These were the factors taken into consideration when selecting the manifest variables to measure human capital on the basis of *Social Diagnosis* data. Therefore, the following variables were used:

- education measured with the number of years of education completed²⁷,
- civilizational competence it was assumed that these are manifested through:
- 1. use of internet,
- 2. command of English,
- 3. participation in life-long learning a measurement made on the basis of answers on new professional qualifications or other skills gained in the preceding two years.

The variables defining human capital are considered to act as its stimulants, meaning that their higher values are correlated with a higher level of human capital.

The quality of the human capital measurement model was verified by confirmatory factor analysis for each study wave separately as well as on the combined data set. In the latter case, the estimated model imposed equality conditions for all factor loadings, as well as the intercept for the variable (years of completed education) and the thresholds of the scales of answers for the remaining four manifest variables.

Thus, the results obtained confirmed that not only do education and trainings but also civilizational skills determine the level of human capital, though the importance of the former two should not be underestimated.

The CATPCA²⁸ was used to construct the synthetic human capital index. In order to compare levels of human capital in 2007, 2009, 2011 and 2013, analysis was conducted on the combined set of data for *Social Diagnosis* 2007, 2009, 2011 and 2013. It was confirmed that the set of variables proposed well reflect the latent variable "human capital". It turned out that in the four waves, in total four indicator variables might be replaced with one synthetic variable that explains 55.57% of the total variability of the set of manifest variables. Moreover, the first principal component may be also considered as a synthetic human capital index. In order to better highlight the differences in the level of human capital, its synthetic index, which was a standardised variable (with the average equalling 0 and standard deviation of 1), was normalised so as to take values from 0-100²⁹. All comparative analyses were conducted with the normalised variable.

4.5.2.2. Human capital in Polish society between 2007 and 2013

Since 2007, human capital has been growing systematically in Poland. In 2007, its index was 41,72 and in 2013 45,68 (figure 4.5.1). Apart from that, the measurement errors were small enough to consider all changes statistically significant.

This result corresponds to observations based on analysis of the dynamics of specific manifest variables in 2007-2011 (figure 4.5.2). In this period there was a considerable increase in the percentage of persons using internet. The percentage of persons taking part in activity aimed at gaining new qualifications or skills first increased (in 2009 in relation to 2007) and then decreased (in 2011 in relation 2009). The share of persons with the command of English (active or inactive) was stable.

²⁷The square brackets include abbreviated names of the variables – these names will be used in the further text.

²⁸As mentioned by Górniak (2000, p. 316), categorical principal component analysis, as opposed to the factor analysis, allows for unambiguous calculation of the value of variables representing the dimension measured by the set of manifest variables.

²⁹Value 0 and 100 were ascribed with non-normalised value of the human capital index, corresponding to the minimum and maximum values of manifest variables. In the case of the number of years of completed education the assumed minimum value was 0 and the maximum 30.



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Figure 4.5.1. Human capital in 2007, 2009, 2011 and 2013.



Figure 4.5.2. Percentage of persons with a command of English (active or inactive) who use the internet and acted to raise their professional qualifications or skills in the last 8 years

These changes are undoubtedly the consequence of the greater computerisation of socio-economic life in Poland. The very dynamic development of computer tools also has a considerable impact as it allows for more effective search for information in the internet, as in the case of a greater availability of professional software dedicated to certain types of businesses.

The results show that greater availability of technologies is reflected in their more common use. The consequent development of human capital will contribute to the closing of the gap between Poland and other European Union countries with a high level of human capital.

4.5.2.3. Diversification of human capital by socio-economic group

In order to assess the level of Polish human capital in 2013, an average level of this asset was compared for the population groups based on:

- gender.
- age.
- size of place of residence.
- status on the labour market.
- social and professional status.

The results of calculations have been presented in tables 4.5.3-4.5.6 and figures 4.5.3-4.5.7. The comparison of the values of human capital level for specific demographic and social groups has led to the following synthetic observations:

- Though since 2009, men have been characterised by a higher human capital than women, in 2013 the difference is insignificant,
- The level of human capital decreased with age; the highest level of human capital was recorded for persons aged 15-34 and the lowest among persons aged 45 and more. The discrepancy between the persons in the non-mobile age and persons aged 35-44 increased with time, though the latter group reduced its distance to the youngest persons,
- The level of human capital decreased together with the diminishing size of place of residence. Thus, the inhabitants of the largest towns were characterised by the highest level of human capital and the inhabitants of rural areas by the lowest, although the relatively greatest improvement in the level of human capital was observed among the inhabitants of rural areas. A growth trend was recorded also among the inhabitants of other place of residence classes with an exception of cities with 20,000-100,000 and 200,000-500,000 residents.
- Persons who were professionally active demonstrated a higher level of human capital than the persons who were professionally inactive. Among the professionally active, persons the employed demonstrated a higher level of human capital. The distance between professionally active and the professionally inactive persons has continued to grow.
- The significant improvement in the level of human capital among the unemployed observed in 2009-2011 was reversed, which with the steady growth of capital among those in employment contributed to the renewed widening of the gap between the employed and the unemployed as regards the level of human capital.
- There are four stable groups of persons in terms of status on the labour market and level of human capital: the highest level was observed among students. The second group comprises public sector employees, private entrepreneurs and private sector employees listed from the lowest to the highest value of this indicator. The third group, with a considerably lower level of human capital, consists of the unemployed and other professionally inactive persons. Retirees and pensioners belong to the fourth group with the lowest level of human capital; the relative improvement in the level of human capital concerns the retired and farmers, pensioners and other professionally inactive persons, as among the unemployed, human capital decreased compared to 2009.

In 2007, no difference in the level of human capital between men and women was observed. However, this difference appeared in 2009 and remained in 2011 and in 2013, it is once again statistically insignificant.



Figure 4.5.3. Average level of human capital in 2007-2013 according to gender

The level of human capital decreases very dynamically with age, which seems to be a feature of contemporary times. The technologies that are in use and are recognised as modern have a short history.

In the past, people had a lot more time to learn new skills that remained useful for a large part of their life. In the knowledge-based economy, an individual's position on the labour market and competitiveness, as well as efficient functioning in society, are determined by their ability and willingness quickly to learn how to gain information about new technologies and skilfully use them. Young people are better at dealing with these challenges, hence the highest level of human capital in the age group 15-34.



Figure 4.5.4. Average level of human capital in 2007-2013 by age

A fall in the level of human capital with the decrease of the place of residence class stems from several factors. Firstly. large towns offer a much better selection of education. All towns with more than 500,000 inhabitants are academic centres with a considerable level of human capital. They have also the best secondary and often also primary schools. They offer a much better infrastructure for school and university students providing, for instance, access to libraries and places where state-of-the-art technologies are available. Secondly. the persons with the highest educational attainment migrate to large towns where, thanks to the concentration of human capital, they are more mobile and able to receive better job offers. Thirdly, the head offices of large enterprises are located in large towns. hiring employees with higher qualifications and attracting persons with higher human capital.



Figure 4.5.5. Average level of human capital in 2007-2013 by place of residence class

Professional activity contributes to maintenance of the level of human capital as well as to gaining new skills. Remaining outside the labour market usually leads to a gradual depreciation of skills and contributes to a decrease in the level of human capital. which in turn may be an obstacle to becoming professionally active.



Figure 4.5.6. Average level of human capital in 2007-2013 by social and professional status



Figure 4.5.7. Average level of human capital in 2007-2013 by labour market status

In order to take a closer look at the level of human capital in Poland, we examined its level with respect to gender and the following characteristics:

- age,
- size of the place of residence,
- social and professional status,
- status on the labour market.

The results were presented in table 4.5.3 (for gender and age) and table 4.5.4 (for gender and the remaining three characteristics) and table 4.5.5 (for age and the remaining three characteristics). The synthetic human capital index demonstrates that in 2009 and 2011 men were characterised by higher level of human capital than women (figure 4.5.3). However, having takingen age into account, helped to correct this conclusion (table 4.5.1). Namely, in all years under analysis, i.e. in 2007, 2009, 2011 and

2013, among persons aged 15-34 and 35-44, women were characterised by a higher level of human capital, and among persons aged 45 and above this was the case forit was men. The observed differences between women and men in all groups were statistically significant for all analysed periods.

The higher level of human capital among women aged 15-44 is undoubtedly a consequence of the higher number of years spent by women in formal education and the higher female tertiary enrolment rate. The higher level of human capital among men aged 45 and above in comparison to women may result from the differences in educational attainment in the older age groups, to the disadvantage of women, as well as from the fact that women leave the labour market earlier than men. Therefore, they lose contact with innovations that one has to be familiar with while being on the labour market.

		Human capital 2007		Human capital 2009		Human cap	oital 2011	Human c	Human capital 2013	
Age group Gender		Average	Standard	Average	Standard	1 Average	Standard	Average	Standard	
	Average	error	Average	error	Average	error	Average	error		
15-34	М	52.35	0.37	55.50	0.24	56.65	0.21	56.64	0.22	
	F	55.17	0.34	57.94	0.23	59.13	0.21	60.37	0.20	
35-44	Μ	41.85	0.55	45.53	0.38	47.84	0.37	49.53	0.34	
	F	42.40	0.54	46.58	0.40	49.21	0.37	51.30	0.35	
45 and above	М	32.82	0.27	34.01	0.18	35.70	0.19	36.17	0.19	
	F	32.01	0.24	32.81	0.17	34.37	0.17	35.15	0.18	

Table 4.5.3. Level of human capital by gender and age

As has already been underlined, with respect to the labour market status, the highest level of human capital was recorded among the employed, then the unemployed and the lowest among the professionally inactive. This observation does not change significantly when we compare men and women. The one exception was unemployed women who in 2011 were characterised by a higher level of human capital than employed men. The observed difference in the level of human capital between the two groups was statistically significant³⁰. It should be also underlined that women were characterised by a higher level of human capital among employed and unemployed persons (in all periods under analysis) while among persons who were professionally inactive men had a higher level of human capital. The observed difference in the level of human capital was statistically significant³¹ for all compared groups with the exception of unemployed women and men in 2007 and 2009.

In the groups broken down by social and professional status in all periods under analysis, women were characterised by higher level of human capital than men within groups of public sector and private sector employees, entrepreneurs, the unemployed, other professionally inactive persons and school and university students. Men were, however, better equipped in human capital among farmers, retirees and pensioners.

The observed differences in the level of human capital between women and men in the social and professional status groups were statistically significant³² for all the group of the unemployed and entrepreneurs with the exception of farmers and other professionally passive. Moreover in 2007, among unemployed and other professionally inactive, differences between women and men were statistically insignificant and to the advantage of women.

As regards social and professional status, in each period under analysis the highest level of human capital was recorded for female school and university students, followed by male school and university students and women employed in the public sector as well as working as entrepreneurs. The lowest level of human capital was observed among female retirees and pensioners as well as among male retirees and women agricultural workers.

Analogical analyses were conducted for age in order to examine how the level of human capital was shaped in different age groups, as well as in relation to the place of residence class, labour market status and social and professional status. The results were presented in table 4.5.5.

Again, the highest level of human capital was observed among the youngest age group of 25-34 year-olds and the lowest among persons aged 45 and above. This regularity was true for all assessed cross sections and with respect to place of residence class, labour market status and social and professional status.

³⁰At the significance level of 0.01.

 $^{^{31}}$ At the significance level of 0.01.

³²At the significance level of 0.01.

Other

inactive

labour

36.47

38.09

М

F

1.03

0.59

37.67

38.38

Values for		Human capital in 2007		2007 Hu	man capital in 2009	Human	capital i	n 2011	Human capital in 2013	
independent characteristic s	Gen der	Avera ge	Standar d error	Average	Standard error	Average	Stan dard erro r	Average	Standard error	
Place of resider	nce clas	SS								
Towns of	М	52.52	0.83	53.65	0.50	55.41	0.47	56.29	0.45	
over 500k	F	52.10	0.70	53.13	0.47	53.82	0.44	54.93	0.44	
Towns of	М	48.68	0.75	50.96	0.52	52.72	0.52	52.39	0.52	
200K-300K	F	47.41	0.69	50.44	0.51	51.95	0.50	51.63	0.51	
	Μ	45.42	0.81	48.85	0.59	48.53	0.58	48.95	0.54	
Towns of									0.53	
100k-200k	F	44.57	0.74	46.14	0.58	45.88	0.55	48.22	0.55	
Towns of	М	44.26	0.52	45.60	0.37	46.64	0.33	46.23	0.34	
20k-100k	F	42.73	0.48	43.67	0.35	45.74	0.33	45.91	0.34	
Towns of 20k	М	40.61	0.60	42.95	0.43	45.40	0.41	45.28	0.43	
and less	F	40.97	0.60	41.21	0.43	42.66	0.41	43.80	0.44	
Rural areas	M F	35.17 35.61	0.33 0.34	38.30 37.82	0.24 0.25	39.83 39.47	0.23 0.25	40.66 40.75	0.23 0.25	
Labour market	status									
Lucour market	M	43 88	0.31	46 60	0.21	48 38	0.19	49.00	0.19	
Employees	F	48.00	0.34	50.42	0.24	51 53	0.12	53 32	0.21	
	M	29 12	0.04	41.08	0.24	16 19	0.22	44.00	0.21	
	IVI	36.43	0.90	41.96	0.05	40.16	0.05	44.09	0.54	
Unemployed	F	40.78	0.83	43.08	0.67	50.19	0.59	48.30	0.56	
Inactiva	м	38 85	0.40	30.80	0.28	40.13	0.28	40.17	0.28	
labour	E	26.02	0.40	27.14	0.28	40.13	0.28	20.15	0.28	
labour	<u>г</u>	30.03	0.30	37.14	0.22	37.83	0.21	38.15	0.22	
status *	onai								0.46	
Dublic costor	М	49.19	0.68	52.01	0.46	53.74	0.45	54.13	0.46	
									0.35	
employees	F	54.59	0.54	56.23	0.37	56.81	0.36	58.48		
Private sector	М	43.60	0.43	47.31	0.29	48.64	0.26	49.85	0.25	
employees	F	48.06	0.51	51.16	0.36	51.67	0.31	53 68	0.30	
employees	M	49.26	0.81	50.91	0.56	51.54	0.51	50.50	0.50	
Entrepreneurs	E	51 /3	1 31	55 54	0.03	56.54	0.83	56.05	0.72	
	1 M	21.72	0.61	22.01	0.75	25.52	0.05	26.15	0.72	
Farmers		21.05	0.61	33.01	0.41	55.52 25.09	0.48	25.01	0.47	
	Г	31.05	0.56	32.74	0.55	35.08	0.46	35.81	0.46	
Pensioners	M	33.11	0.65	34.50	0.50	35.73	0.51	33.99	0.48	
1 0110110110	F	29.46	0.57	29.17	0.40 0.26	30.62	0.42	30.76	0.46	
Patiraas	М	28.88	0.37	29.99		31.56	0.29	32.00	0.28	
Remets	Б	27.01	0.20	20.74	0.20	20.07	0.21	20.79	0.22	
	Г	27.91	0.28		0.20	30.07	0.21	30.08	0.22	
School and	М	59.33	0.45	62.66	0.30	60.89	0.30	63.36	0.30 0.29	
students	F	60.79	0.42	63.74	0.27	63.10	0.28	64.00		

Table 4.5.4. Level of human capital by gender. place of residence class, labour market, and social and professional status

*the unemployed form a separate group on the grounds of its socio-professional status. though due also to their inclusion in the classification according to labour market status it was decided not to repeat the results of their human capital reading; SA – stands for standard error

0.54

0.35

39.89

41.43

0.72

0.41

39.73

41.31

0.71

0.40

	Age group	Human capital in 2007		Human capital in 2009		Human capital in 2011		Human capital in 2013	
Values for independent			Standard	A	Standard	A	Standard	A	Standard
characteristics		Average	error	Average	error	Average	error	Average	error
Place of residence class									
	15-34	64.35	0.62	65.73	0.40	65.50	0.35	65.23	0.36
Towns >500k	35-44	56.54	1.31	58.07	0.81	60.37	0.74	62.27	0.59
	45+	40.91	0.69	42.28	0.44	44.39	0.43	45.95	0.45
	15-34	59.62	0.69	63.68	0.42	65.37	0.41	64.23	0.44
Towns 200k-500k	35-44	52.11	1.26	56.77	0.82	57.68	0.73	60.07	0.72
	45+	37.24	0.60	38.13	0.42	41.23	0.44	41.58	0.45
	15-34	57.72	0.79	60.59	0.53	58.27	0.56	61.50	0.48
Towns 100k-200k	35-44	47.10	1.31	52.22	1.05	53.92	0.93	53.25	0.77
	45+	35.52	060	36.96	0.46	37.69	0.46	39.25	0.46
	15-34	56.18	0.50	57.46	0.37	58.59	0.32	59.21	0.33
Towns 20k-100k	35-44	44.43	0.85	48.76	0.58	51.86	0.53	52.15	0.51
	45+	33.99	0.39	34.61	0.27	36.32	0.26	36.40	0.27
	15-34	51.30	0.69	54.89	0.45	57.27	0.40	57.18	0.44
Towns up to 20k	35-44	41.81	0.94	45.13	0.74	46.57	0.72	50.18	0.72
1	45+	32.10	0.46	33.07	0.32	34.56	0.31	35.67	0.34
	15-34	17.17	0.41	51.32	0.27	53 30	0.24	54.64	0.24
Rural areas	25 44	-11	0.41	27.70	0.27	40.22	0.24	42.07	0.24
Rulai aleas	33-44	33.83	0.40	37.19	0.34	40.55	0.55	42.97	0.55
11 1 4 4 4	45+	20.83	0.21	27.89	0.16	28.92	0.16	29.08	0.16
labour market status	15.04	52.07	0.27	5 < 00	0.04	50.10	0.01	50.00	0.00
F 1	15-34	53.27	0.37	56.20	0.24	58.12	0.21	58.82	0.20
Employees	35-44	44.06	0.44	47.80	0.31	49.93	0.29	52.33	0.26
	45+	39.57	0.33	40.65	0.22	41.93	0.21	42.93	0.22
	15-34	48.57	0.90	50.47	0.66	54.99	0.50	53.55	0.49
Unemployed	35-44	33.70	1.13	38.25	0.79	44.30	1.09	42.65	0.79
	45+	30.44	0.65	31.73	0.57	36.71	0.67	35.56	0.58
	15-34	55.74	0.35	58.45	0.24	58.42	0.23	59.36	0.24
Inactive labour	35-44	33.59	0.76	37.13	0.66	39.50	0.65	39.96	0.65
	45+	27.78	0.18	28.33	0.12	29.62	0.13	30.37	0.14
Social/professional status	s <u>*</u>								
Public sector	15-34	62.46	0.68	63.93	0.45	64.49	0.41	65.50	0.42
employees	35-44	51.49	0.78	56.01	0.54	58.78	0.53	60.91	0.48
employees	45+	45.60	0.62	47.42	0.41	48.59	0.40	49.63	.40
Private sector	15-34	51.24	0.48	55.55	0.31	57.16	0.26	58.31	0.24
employees	35-44	41.26	0.62	46.39	0.46	48.16	0.39	50.79	0.35
employees	45+	38.31	0.54	39.29	0.34	39.79	0.31	41.42	0.33
	15-34	56.80	1.16	57.69	0.81	62.23	0.71	59.16	0.75
Entrepreneurs	35-44	48.93	1.37	52.38	0.89	51.96	0.78	54.28	0.69
	45+	45.60	0.99	47.58	0.75	46.96	0.63	47.41	0.65
	15-34	37.18	1.06	38.33	0.81	44.97	0.79	46.03	0.80
Farmers	35-44	30.92	0.67	34.38	0.56	35.96	0.59	38.13	0.61
	45+	28.55	0.48	29.80	0.40	30.34	0.32	31.12	0.32
	15-34	54.72	1.33	57.52	1.03	56.54	0.96	55.14	1.22
Pensioners	35-44	31.19	1.27	33.81	0.95	38.64	1.39	37.66	1.28
	45+	26.93	0.30	27.35	0.23	28.43	0.25	28.71	0.26
Retirees	45+	28.26	0.22	29.18	0.16	30.57	0.17	31.15	0.17
School and university	15.24	(0.12	0.01	(2.22	0.00	(2.05	0.01	() T +	0.01
students	15-34	60.13	0.31	03.23	0.20	62.05	0.21	63.74	0.21
	15-34	44.68	0.79	44.93	0.46	49.49	0.54	49.93	0.54
Other inactive labour	35-44	34.52	0.94	37.57	0.58	41.68	0.74	40.50	0.73
	45+	30.28	0.64	30.42	0.35	32.29	0.41	32.69	0.41

Table 4.5.5. Level of human capital among 15-34. 25-44 and 45+ age-groups by place of residence class. labour market. social and professional status

*the unemployed form a separate group on the grounds of its socio-professional status. though due also to their inclusion in the classification according to labour market status it was decided not to repeat the results of their human capital reading; SE – standard error

In order to examine the joint influence of the examined characteristics, e.g., gender, age, place of residence class and the status on the labour market in Poland in 2013, a two-level regression model with random intercept was estimated. Household members were the first level of analysis whereas the households were the second. The use of the two-level model was necessary as it was presumed that the levels of human capital of any one household's members were visibly correlated with each other. In order to verify this assumption, an interclass correlation coefficient was calculated for the human capital index in 2013. The obtained value at the level of 0.567 is significant and implies that the impact of

estimates of the parameters of the intercepts' effects in the final model³³ have been presented in table 4.5.6.

*Table 4.5.6. Assessment of effect of constant parameters in a two-level regression model with random absolute term*³⁴ *Social Diagnosis 2013*

Variables	Estimation	Standard error	Significance
Constant	28.05	0.24	0.00
Status on the labour market			
The employed	7.25	0.21	0.00
The unemployed	3.03	0.42	0.00
Professionally inactive	ref.		
Age			
15-34	22.16	0.16	0.00
35-44	10.24	0.23	0.00
45 and above	ref.		
Status on the labour market and gender			
Employed man	-2.57	0.17	0.00
Employed woman	ref.		
Unemployed man	-2.50	0.52	0.00
Unemployed woman	ref.		
Professionally inactive man	0.88	0.21	0.00
Professionally inactive woman	ref.		
Place of residence class			
Towns of over 500k	13.79	0.42	0.00
Towns of 200k-500k	11.01	0.43	0.00
Towns of 100k-200k	8.37	0.47	0.00
Towns of 20k-100k	6.18	0.34	0.00
Towns of 20k and less	4.86	0.40	0.00
Rural areas	ref.		

The obtained results correspond to the results of descriptive analyses discussed above. Thus, they confirm that in terms of human capital there are considerable differences between persons of various status on the labour market (the highest level of human capital was observed among persons who are employed, lower among the unemployed and the lowest among professionally inactive persons). Professionally active women (both employed and unemployed) are characterised by a higher level of human capital than professionally active men, however men are characterised by a higher level of human capital among the professionally inactive. There are also differences between age groups as the younger the person, the greater the human capital at his/her disposal. Also place of residence class clearly determines residents level of human capital, the larger being the city, the higher the level of human capital among the household members compared to residents of rural areas.

4.5.2.4. Summary

Results of analysis of *Social Diagnosis 2013* data confirm the rising tendency in human capital in Polish society. Above all, this has arisen mainly because of the continued growth in use of new information technology, as other components of human capital measure (knowledge of English, higher education etc.) indicate stagnation or even regression. In 2013, the differences in terms of human capital with respect to age have remained. They favour the young rather than the elderly. On the one hand this is a good signal that new participants in the labour market will be able to meet market requirements in terms of modern technology. On the other hand, the disproportions in human capital level between the selected age groups shrank in 2013 compared to 2007-2011, but rose between groups with control for gender. This indicates the particular threat of growing disproportions in human capital in terms of age and confirms the key role of life-long learning to counter this threat. This result also highlights the fact

³³Multi-level regression models are estimated in an iterative way. This means that we start with a model with the constant and at further stages other variables are included, at the same time decisions are made on taking into account the fixed and/or random effects. The quality of estimated models is assessed on the basis of the information criteria and with a likelihood ratio test.

³⁴The parameters have been estimated with the residual maximum likelihood method (REML).

that keeping those in older productive age groups, especially women, in the labour market - seen as essential to counter the multiple effects of the changing age structure – demands significant efforts to improve their human capital.

Among those aged 18-44, women dispose of greater human capital than men, while for the 45+ age group the reverse is the case. Because the low professional activity of older productive age groups is strongly determined by the early withdrawal of women from the labour market, this result underlines the importance of increasing the human capital of women of this age for an improvement in the employment prospects for this age group.

For residents of rural areas, the unfavourable differences in human capital have narrowed slightly, though this group still shows the lowest levels of this capital. Despite this improvement, the low position of agricultural workers compared to other groups in terms of human capital did not improve, which underlines the scale of essential investment in the human capital of both farmers and rural residents. These are essential to reduce inequalities in levels of human capital that can hold back the development of rural areas. A higher level of human capital in the rural areas will improve farmers' capacity to adopt modern technology, which is essential to ensure the competitiveness of this sector of the economy.

Analysis of human capital in terms of labour market status reveals the significant formative role of labour market participation. However, it is worth underlining both the continuous improvement in human capital levels not only among those in work, but also the halting of the improvement observed up to 2011. The changes observed earlier were no doubt influenced by the human resources development programmes so widely implemented recently, and also by the rising threat of unemployment to those with higher education status, especially the young graduates entering the labour market. Of concern is also the continued growth in disproportion between the human capital level of the professionally active and passive. The activation of those remaining outside the labour market depends also on the growth of employment in Poland, which may be problematic precisely due to the growing difference in human capital at the disposal of the two groups.

Results of analysis also show that students are the group with the largest human capital. They gain the essential skills to use the tools of the modern technologies during their studies, though it ought to be remembered that they will have to use these skills on the labour market in coming years. Furthermore, there are indications that the structure of education is poorly adapted to the needs of the economy with too many social and humanistic qualifications and a deficit of science and technology graduates. This implies that apart from the high level of human capital of students compared to other social groups, there is still a necessity to adapt their competences to labour market needs in order to avoid the skills miss-match. This, in turn, requires change in education programmes at ministerial level.

4.5.3. Children's education

69.4% of household members reported they wanted their childern up to 26 years of age to graduate from university with a master's degree in 2013 (65.1% in 2011). Almost 15% (the same as in 2011) declared they were satisfied with technical or professional higher education and 10% (11.8% in 2011) a lower level of professional qualification.

In terms of educational aspiration, households of the entrepreneurs and that of employees indicated master's degree graduates in 2013 at 81% and 73% respectively as well as households of couples with 1 child (nearly 76%). Households without unemployed members decidedly more often indicated this educational attainment than those with unemployed members at nearly 73% and over 62% respectively. Households with these educational aspirations were most frequently located in towns of over 500 thousand residents (almost 82% of households) and Podlaskie and Świętokrzyskie (nearly 85% and 83% respectively). Households living on unearned incomes (around 45%) and incomplete families (almost 61%) least often expected their offspring to achieve this educational attainment. Low-level educational aspiration households were relatively most frequent in rural areas and in Warmińsko-Mazurskie.

Households living on unearned sources (around 36%) and couples with many children (over 25%) declared the highest share of educational aspiration at the lowest level of professional graduate qualification. This aspiration level was relatively most frequently reported by households in rural areas at over 24% and in Warmińsko-Mazurskie (nearly 25%).

Households were most frequently forced to forgo, for financial reasons, additional activities and remedial lessons for children in the 2012/2013 school year at over 15% and 12% respectively. Least frequent were changes in school on the grounds of lower fees (around 1.4% of households).

Households that were most frequently forced into various forms of financially motivated resignation from their children's education were those living on unearned income and pensioners at around 36% and nearly 35% respectively in the case of additional activities. Households with unemployed members were for more often forced to limit spending on their children's education than those without. Analysis of the scale of financial limitation as regards children's education by household type reveals that incomplete family and couples with many children were most affected at over 25% and nearly 22% respectively in the case of forgoing additional activities. Relatively most frequent were forced limitations of the kind discussed among households in large cities and in Pomorskie at nearly 19 and 22% respectively.

In the last two years, there has been a marked rise in resignations, especially in the case of additional activities among households with 2 children by nearly 5 p.p., in rural areas, towns of less than 100 thousand residents by over 2 p.p. and in Kujawsko-Pomorskie, Lubelskie and Śląskie at nearly 8 p.p., 7 p.p. and over 5 p.p. respectively.

In February/March 2013 over 78% of households reported that the level of their children's educational need satisfaction had not changed since 2011, over 16% claimed it had worsened and 5% noted an improvement. Compared to 2011, household assessments regarding changes in their children's educational need satisfaction had not changed significantly. Changes for the worse were most often reported by households living on unearned sources and pensioner households at around 37% and over 24% respectively, incomplete families and those with many children (over 26% and nearly 17% respectively). Households with unemployed members are clearly more frequent than those without in claiming their children's educational need satisfaction had worsened over the last two years (over 28% and nearly 14% respectively) In this respect, households do not vary much in place of residence class, with the most frequent deterioration reported in large cities (over 20%) and in Podkarpackie at over 19%.



Forms of withdrawal or limitation

Figure 4.5.8. Households' financial difficulties in terms of children's education in the 2009-2013 panel sample

³⁵ All changes in terms of children's education in 2009-2013 refer to the panel sample for those years and the intervening year of 2011.

³⁶ All changes in terms of children's education in 2011-2013 refer to the panel sample for those years.