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NON-MONETARY AND SOCIAL EFFECTS OF EDUCATION

Abstract

As far as the literature on human capital, and particularly a certain part of human capital theory (i.e. costs and effects of education) are concerned, costs and effects of investments in education are presented from a monetary perspective. Apart from these notable effects, there are also slightly notable or even immeasurable effects also known as non-monetary effects. These effects influence the quality of human capital of an individual but also the quality of human capital of the entire society to some extent. Non-monetary effects involve a greater ability to make rational decisions and collect information, or take care of one's health more. The last-mentioned element (as completing the skills and knowledge acquired) is particularly significant in the context of investment in human capital as it influences one's satisfaction with life, motivation and energy to work, work output, etc.

The present paper aims at presenting non-monetary and social benefits accruing from investment in education, which will be done via the analysis of the literature on the subject as well as statistical data derived from Eurostat. At the same time, a thesis about the positive influence of educational level on various elements connected with one's health will be formulated.

As a result of the analysis of statistical data, the thesis has been validated, i.e. there is a relationship between educational level and one's health. The higher the educational level, the more one is satisfied with his/her health, and the lower the incidence rate is, and the less overweight one is, and finally the smaller number of cigarettes one smokes.

Key words: human capital, education, health

Introduction

At the turn of the 1950's and the 1960's, Becker (1975) formulated human capital theory. The theory suggested that a human being is the most valuable element among firm's resources, as one's knowledge, skills, motivation to work, etc. essentially influence work output, the size and quality of production or services provided, and as a consequence economic growth. As far as Central-East European countries (so Poland as well) are concerned, the concept of human capital, and mainly of investing in education and improving employees' qualifications, has been developing since the turn of the 1980's and the 1990's.

According to the concept discussed, investment in human capital is the main issue relating to using and developing this capital. On a macroeconomic scale, such investment will affect economic growth of a particular country through a direct relationship with microeconomic scale in the case of which the quality of human capital is connected with work output, and hence with the functioning of enterprises and their competitiveness. On the other hand, work output has a direct influence on salaries and wages earned by workers and also on their satisfaction with job, life, will to develop, etc.

Human capital theory has become a crucial element in a thorough analysis of the role

that human factor plays in economic processes. According to this theory, outlays on improving the quality of this factor are treated as investments (so in purely economic terms). Schultz (1961 (1), p. VI, 9) was the first one who treated investment in a human being in such a way. He distinguished five groups of elements contributing to human capital development (Schultz 1961 (2), pp. 1, 8 – 13), namely

- Formal education
- On-the-job training
- Health
- Education programmes for adults
- Migrations

Therefore, human capital may be developed via investments that affect greater work output in the future. The main types of these investments are as follows (Mincer pp. 58-60, Schultz 1961 (1), pp. 1-16, Schultz 1961 (2), pp. 60-61):

- Health protection expenses prolonging one's life and improving the general health,
- Education expenses as a part of educational systems (including adult education),
- Expenses on training for a job and on-the-job training,
- Expenses incidental to migration of people incurred to adjust to new employment opportunities,
- Expenses on collecting professional information,
- Research expenses.

Increase in education expenses, but mainly individual investments, has been observed in Poland since the turn of the 1980's and the 1990's. It was then that the number of people with secondary education increased, but still, the number of persons in higher education rose even more considerably. It could be stated that educational boom was observed as the number of persons in higher education rose from c.a. 350 000 to c.a. 2 million in the period 1990 – 2007.

Hence, issues relating to costs and effects of investment in human capital development (through, among others, education and health care) began to be raised in the second half of the 20th century. However, the research raised only the issue of costs and benefits accruing from education (see: Jarecki, 2006, pp. 21-34). The costs usually involve direct education expenses and the amount of wages or salaries lost as a result of entering further education, while as for effects – salaries or wages received. Apart from notable effects of education, there are also effects indirectly connected with education as well as slightly notable or immeasurable effects that are also known as non-monetary effects that particularly influence the quality of human capital of an individual but also the quality of human capital of the entire society to some extent. Non-monetary effects involve a greater ability to make rational decisions and collect information, or take care of one's health more. The last-mentioned element (as completing the skills and knowledge acquired) is particularly significant in the context of investment in human capital as it influences one's satisfaction with life, motivation and energy to work, work output, etc. (see also: Polańska 2002, p. 49).

The present paper aims at presenting non-monetary and social benefits accruing from investment in education, which will be done via the analysis of the literature on the subject as well as statistical data derived from Eurostat. Data covers the period 2004-2005. At the same time, a thesis about positive relationship between educational level and various elements of human capital of an individual and the entire society as well as one's health will be validated.

Moreover, it should also be added that due to limited accessibility of statistical data, it is not always possible to compare situation occurring in Poland and situation in the entire European Union in the context of relationship between education and health, and, what is more, data concerning the relationship between education and elements connected with one's health is presented only in few scopes.

Non-monetary and social effects of education – the hitherto existing research

As it has already been mentioned, monetary effects of investment in education are mentioned in the literature on the subject the most often. However, a large number of results of the research on non-monetary and social effects of education may be found as well. The aforementioned research suggests that a well-educated person may choose from a wider range of professions, carry less dangerous work, live in less polluted regions, be more aware of the fact that he/she has to take care of his/her health, eat more balanced diet, and visit the doctor more often. Furthermore, well-educated persons are probably more satisfied with their jobs, which results from a wider range of professions they can choose from (the more educated a person is, the wider this range is), or take up more interesting job.

It is also worth paying attention to the fact that educational level of a particular person may have a positive influence on education of his/her children. The research conducted in Poland also shows that well-educated persons expect their children to be well-educated (and, as a result, achieve this objective) (Central Statistical Office 2005, pp.102-109; Sikorska, Białecki pp. 51-69). This fact refers not only to educational level but also to the quality of knowledge acquired (Woessmann 2001). There is also a positive relationship between educational level of parents and their children's health (see: Glewwe 1999, pp. 124-159).

Apart from the aforementioned effects, improving the educational level may also produce the following results:

- well-educated persons are less likely to make wrong decisions (e.g. smaller risk of making mistake while buying goods, particularly on credit due to better understanding of the functioning of market mechanisms, and others) (to find more see in: Vila 2000, pp. 21-32 and in: Wolfe, Haveman, pp. 21-22,
- possibility of taking up more interesting job and greater chances for finding a job in accordance with one's interests, as well as greater possibilities of choosing the employer, job, or even place or region (Johnstone 2005, p. 6),
- the number of persons interested in science, research, technique and environmental protection increases with the educational level (Stoker, Streckeisen, Wolter 1998, p. 43),
- well-educated persons are more often owners of firms and employ other persons (including poorly educated persons) (Wolter, Stefan 2001, p. 16),
- positive relationship between education and health (Berger, Leigh 1989, pp. 433-455),
- improvement in social status and social prestige. They are not admittedly an element directly connected with market mechanism, however, thanks to social prestige, one finds it easier to function in society (Eckaus 1970, p. 72; Bodenhöfer 1978, p. 137),
- well-educated persons are more active in social and political matters (Stoker, Streckeisen, Wolter 1998, p. 43),
- crime reduction (cf. Chapman 2005, p. 7),
- influence on culture development (Schumann 2001, p. 32; see also: Johnstone 2004, p. 403),
- socialization in one's college days (see: Schmidtchen, Roland 2005, p. 11),
- persons with higher education are more active, particularly in Poland in the scope of training (Jarecki 2006). This benefit refers to both individuals and enterprises to which possibility of gaining specialist qualification is of profound importance,
- well-educated persons may share the knowledge they have acquired with their children, and education becomes a sort of habit (Pechar, Keber 1996, p. 50). As a

result, such a person is more satisfied with his/her life,

- well-educated persons (particularly persons with higher education) are more innovative, especially as far as new technologies, organization of labour, implementation of new techniques, computer programs, etc. are concerned (Bartel, Lichtenberg 1987, pp. 1-11). Hence, these persons have larger opportunities for getting more interesting job and higher salary/wage.

The research also shows that increase in educational level contributes to increase in investments made by households in human capital connected with qualifications (Kirchner, p. 193).

Hence, it can be noticed that the aforementioned positive non-monetary and social effects, produced thanks to increase in educational level, refer to various aspects of one's life, and so to the entire society. These effects should be further examined.

In the next section of the present paper, a thorough statistical analysis of the relationship between education and health was made.

Educational level vs. health¹

Good health enables one to work efficiently and improve his/her qualifications. Nevertheless, one takes care of his/her health when he/she is aware of its value². According to the research conducted by National Institute for Statistics and Economic Studies (INSEE) in France, cancer incidence rate is increasing among workers who have the lowest qualifications. They suffer from larynx cancer, throat cancer, oral cavity cancer and lung cancer, which is due to excessive consumption of tobacco and alcohol. On the other hand, the research carried out by Polish researchers shows that the higher the educational level is, the more balanced diet a person eats and the more he/she cares for hygiene and recreation. Persons with higher education living in the most polluted regions of Poland (Upper Silesia, Legnica) live longer than unqualified persons from Warmia and Mazury (<http://fakty.interia.pl/nauka/news/czy-wykształceni-zyja-dluzej,854427,14>). These examples allow for stating that education (and hence qualifications) received influences one's health and condition.

The tables below show data concerning the relationship between educational level and various aspects connected with one's health. Table 1 shows opinion held by people in Poland and the European Union with reference the extent to which they are satisfied with their health. Subsequent tables refer to diseases and complaints, including overweight and smoking.

¹ Level 2 had not been taken into account in the analysis as this level encompassed mainly persons aged 15-24, which considerably distorted the overall outcome (the remaining levels encompassed persons aged 15-64).

² Material value as well. Statistical data shows that health care expenses constitute 4 per cent of Polish households expenses, while the EU average amounts to 3.4 per cent (Eurostat: http://epp.eurostat.ec.europa.eu/portal/page?_pageid=1996,39140985&_dad=portal)

Table 1. Satisfaction with health and condition declared by people in Poland and the European Union by educational level (ISCED 97)³ in 2005

Educational level	Total		Level 0		Level 1		Level 3		Level 4		Level 5		Level 6	
	EU	PL	EU	PL	EU	PL	EU	PL	EU	PL	EU	PL	EU	PL
Fully satisfied	21.3	15.5	2.0	1.0	8.4	5.6	23.3	15.1	25.0	18.3	27.4	22.1	39.9	22.2
Satisfied	42.6	39.0	12.2	6.5	32.0	21.0	45.4	43.4	46.6	44.6	48.1	50.1	42.1	51.1
Fairly satisfied	25.1	26.8	41.3	30.4	36.8	36.3	23.3	26.9	22.3	27.4	19.5	20.3	14.6	18.6
Unsatisfied	8.9	15.0	34.5	47.9	18.1	28.9	6.6	12.2	5.3	8.6	4.1	6.2	3.1	6.4
Very unsatisfied	2.1	3.7	10.0	14.2	4.7	8.2	1.4	2.5	0.8	1.0	0.9	1.3	0.3	1.8

Source: http://epp.eurostat.ec.europa.eu/portal/page?_pageid=0,1136184,0_45572595&_dad=portal&_schema=PORTAL

Data presented in Table 1 suggests that most people are satisfied with their health, and at the same time people living in the EU are, on average, more satisfied compared to the Poles. In the EU, almost 64 per cent of people declare they are fully satisfied or satisfied with their health, while in Poland – almost 55 per cent. Persons with higher education or doctorate are the most satisfied as in the EU 80 per cent of persons from the aforementioned group are satisfied or fully satisfied. In Poland, such persons constitute c.a. 72-73 per cent. Satisfaction with one's health decreases with educational level.

Table 2 shows the percentage of persons who have suffered from a long-term illness at least once since the age of 15.

Every third person suffered from a long-term illness both in the case of the entire EU as well as in Poland. The highest percentage of such persons was reported among uneducated persons, almost 58 per cent of whom was recorded in the EU, while in Poland – almost 72 per cent. It could be noticed (Table 2) that the percentage of persons who suffered from long-term illnesses declined with every another (higher) educational level. Among persons with at least bachelor's degree, c.a. every fourth person suffered from a long-term illness in Poland and in the EU.

³ Particular levels refer to the following educational levels: level 0 – uneducated, level 1 – primary education, level 3 – vocational and secondary education, level 4 – post-secondary education, level 5 – higher education (bachelor's and master's degrees), level 6 – doctorate. In Tables 4-6, educational level 4-6 has been adopted. It is worth paying attention to the fact that people with higher education constitute 95 per cent of persons in this group.

Table 2. Percentage of persons who suffered from a long-term illness (by educational level in 2005)

Educational level	European Union	Poland
Total	31.1	32.0
0	57.9	71.7
1	42.7	51.8
3	27.7	27.9
4	27.3	27.5
5	26.0	22.0
6	24.2	24.1

Source:http://epp.eurostat.ec.europa.eu/portal/page?_pageid=0,1136184,0_45572595&_dad=portal&_schema=PORTAL

Table 3 is a sort of supplement to Table 2. The former shows data on incidence recorded during last six months. Finally, Table 4 shows percentage of persons who suffered from illness two weeks before the survey.

Table 3. Incidence during last six months by educational level (2005)

Educational level	Total		0		1		3		4		5		6	
	EU	PL	EU	PL	EU	PL	EU	PL	EU	PL	EU	PL	EU	PL
Serious illness	7.7	2.2	20.5	7.7	13.2	4.6	5.5	1.6	5.0	1.1	4.6	0.8	3.4	0.0
Minor illness	16.9	13.8	34.7	41.4	23.4	26.3	15.2	11.4	14.8	8.5	14.3	5.6	10.9	6.3
Did not suffer from any illness	75.4	84.0	44.8	50.9	63.4	69.1	79.3	87.0	80.2	90.4	81.1	93.6	85.7	93.7

Source:http://epp.eurostat.ec.europa.eu/portal/page?_pageid=0,1136184,0_45572595&_dad=portal&_schema=PORTAL

During the last six months before the survey was conducted, over 75 per cent of persons in the EU, and 84 per cent in Poland did not suffer from any illness (Table 3). In the EU, almost 8 per cent of people were seriously ill, and in Poland – over 2 per cent. The percentage of persons who did not suffer from any illness rises with educational level. About 81-86 per cent of persons with at least bachelor's degree did not suffer from diseases in the European Union, and in Poland – almost 94 per cent.

In Poland, every second uneducated person and every third person with primary education suffered from diseases during last six months, whereas persons with at least vocational education who had been ill constituted nearly 10 per cent.

It seemed interesting that a larger percentage of people had been ill during last six months in the entire EU than in Poland, and (as shown in Table 2), the number of persons suffering from long-term illnesses was greater in Poland than in the EU. Such a state of affairs may be accounted for by the fact that unemployment in Poland is high and people take up employment despite they are ill. Nonetheless, it is possible that the general health of Polish

society has improved.

As a result, absence from work or smaller work output is observed in the case of people suffering from diseases. Table 4 presented data on the percentage of Polish people whose professional activity was reduced during last two weeks before the survey.

Table 4. Reduction in professional activity during last two weeks due to illness (2004)

Educational level	Percentage of people suffering from diseases
Total	8.3
0-1	10.2
2	-
3	7.3
4-6	6.1

Source:http://epp.eurostat.ec.europa.eu/portal/page?_pageid=0,1136184,0_45572595&_dad=portal&_schema=PORTAL

Professional activity of over 8 per cent of Polish people was reduced during last two weeks before the survey (Table 4). The most considerable reduction was reported in the case of people with at most primary education, while the slightest – among people with at least post-secondary education. Hence, the higher the educational level is, the slightest the reduction in professional activity.

Incidence is connected with one's diet, physical activity, etc. Many diseases (connected with blood circulation and spine in particular) are caused by overweight and obesity. Table 5 shows data on overweight and obesity depending on educational level.

Table 5. Percentage of overweight and obese persons of working age by educational level (ISCED 97) in 2004

Educational level	BMI 25-30 (overweight)	BMI >30 (obesity)	Total of overweight and obese persons
Total	31.8	11.4	43.2
0-1	29.1	14.1	43.2
2	---	---	---
3	33.5	10.2	43.7
4-6	32.9	7.0	39.9

Source:http://epp.eurostat.ec.europa.eu/extraction/retrieve/de/theme3/hlth/hlth_ls_bmie?OutputDir=EJOutputDir_583&user=unknown&clientsessionid=40729DF9E25AD9E61E62E01845564092.extraction-worker-1&OutputFile=hlth_ls_bmie.htm&OutputMode=U&NumberOfCells=10&Language=de&OutputMime=text%2Fhtml&

As shown in Table 5, in 2004 over 43 per cent of Polish people of working age had problems with overweight and obesity, and at the same time overweight persons constituted nearly 32 per cent and obese persons – over 11 per cent.

While differences in percentage of overweight persons were slight, in the case of obesity, people with at most primary education represented the largest percentage (over 14 per cent), and people with at least post-secondary education constituted the smallest one (7 per

cent). It is an interesting observation as persons with at most primary education usually carry out physical labour so it is a kind of physical exercise to them. Nevertheless, it seems that this state of affairs might be caused by the fact that poorly educated persons are usually older, so less active physically.

Smoking is a factor that determines one's health, particularly in a long-term perspective. Table 6 shows the division into smokers and non-smokers by educational level.

Table 6. Smoking vs. persons of working age by educational level in 2004

Educational level	Persons smoking every day	Non-smokers	Persons smoking occasionally	Persons smoking 20 cigarettes a day
Total	29.9	64.4	5.8	55.2
0-1	22.8	72.9	4.2	56.9
2	---	---	---	---
3	36.4	57.0	6.6	55.6
4-6	21.9	71.3	6.8	45.6

Source: http://epp.eurostat.ec.europa.eu/portal/page?_pageid=0,1136184,0_45572595&_dad=portal&_schema=PORTAL

As shown in Table 6, nearly 30 per cent of people of working age smoke every day, and over 64 per cent do not smoke at all. Nonetheless, differences depending on educational level may be observed. The lowest percentage of people smoking every day is reported in the case of people with at least post-secondary education (nearly 22 per cent), and the highest one – among people with vocational or secondary education (over 36 per cent). On the other hand, the largest percentage of smokers was recorded among people with at most primary education (nearly 73 per cent), and the smallest one – among persons with vocational and secondary education.

Taken the number of cigarettes smoked into account, people with at most primary education smoke twenty cigarettes a day the most often (nearly 57 per cent of all the smokers), whereas persons with at least post-secondary education represented the smallest percentage, i.e. nearly 46 per cent of all the smokers.

Conclusion

On the basis of the analysis of the literature on the subject as well as statistical data presented, it can be stated that the thesis formulated have been validated, i.e. increasing the educational level produced many positive non-material and social effects. The majority of these effects had been mentioned in the first part of the present paper and was based on the hitherto existing research described in the literature. On the other hand, effects beneficial to one's health have been presented in the second part of the paper. The more one is educated, the more he/she is aware of the fact that it is necessary to take care of his/her health. In this context, the following relations (stemming from increase in educational level) can be observed:

- Polish people are less satisfied with their health than the remaining EU citizens.
- In the entire European Union (including Poland), one's satisfaction with his/her health is becoming greater and greater and the percentage of persons suffering from long-term illnesses is declining with increase in educational level.
- During six months before the survey, incidence reported in the EU was higher than in

Poland. Both in the EU as well as in Poland, incidence dropped together with increase in educational level of the respondents. Hence, it is interesting that Polish people are less satisfied with their health than all the EU citizens, although they are healthier.

- Nearly every tenth person living in Poland declared that he/she was ill during two weeks before the survey. Well-educated people suffered from diseases less often.
- The percentage of overweight people is similar in the case of all educational levels and amounts to c.a. 30 per cent. Nevertheless, the percentage of obese people (obesity is particularly dangerous to one's health) is declining with increase in educational level.
- Persons with vocational and secondary education smoke cigarettes the most often. However, people with at most primary education smoke the largest number of cigarettes among all the smokers.

Hence, it can be stated that investing in human capital development is favourable to improvement in other elements of human capital such as health, motivation to work, training, knowledge and children education. As a result, chances for country's economic growth in a long-term perspective are greater. Furthermore, work output of individuals and firms as well as competitiveness of both qualifications and firms on the market can improve as well.

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