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The conditions of the development of human capital in agriculture and in rural areas

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COMPETITIVENESS OF THE POLISH FOOD ECONOMY UNDER THE CONDITIONS OF GLOBALIZATION AND EUROPEAN INTEGRATION

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The conditions of the development of human capital in agriculture and in rural areas

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This publication was prepared as a contribution to the research on the following subject **Changes in the socio-economic structure of rural areas as a competitive factor of rural areas** within the framework of the research task *Human capital in the structural transformation process of rural areas and agriculture*

The aim of the publication was to present the theoretical aspects concerning human capital as well as selected determinants of human capital in agriculture and rural areas in Poland.

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Introduction

Within the last years of the past century and at the turn of the present century, the rural environment, influenced by a number of transformations, has become part of the global national economy, integrally connected with the rest of society. These transformations were initiated most of all by changes stemming from the transformation of the Polish economy and the accession of Poland to the EU.

Although the systemic transformation had an undoubtedly positive impact on the standard of living of the major part of Polish inhabitants, it also led to the emergence of the diverse potential of individual units, social groups and regions in seizing the opportunities and possibilities it created. Next to the reconstruction of democratic institutions, building the bases for a market economy and creating new social bonds, it brought a slight improvement in the balance concerning equal opportunities and possibilities, e.g. regarding differences in education level, state of health, income level, etc. In addition, some regions of the country, especially those poorly urbanised and with a low industrialisation level, during the transformation, were only to a limited extent equipped with the necessary instruments enabling them to produce internal development opportunities. Accession to the EU has also influenced the socio-economic situation of the rural population, which had to adjust to the new conditions of living and work.

In the first years of Polish accession to the EU, there occurred significant transformations in the functioning of agriculture and general activity in rural areas. The acquisition of free access to the over-400-million European market by the national producers, macroeconomic changes, extensive support and financial aid within CAP, and structural funds, all positively affected the condition of the national food industry, as well as standard of living in rural areas. A significant acceleration of modernisation left its mark especially in the processing sector and in the range of the technical infrastructure. Positive changes were initiated even before accession, i.a. upon the implementation of the SAPARD programme. Afterwards, the financial revenues of some agricultural farms increased, mostly due to direct subsidies and development programmes directed at rural regions and the agricultural sector.

However, rural areas are now becoming more and more independent from the agricultural sector. The number of non-agricultural families in rural areas is

increasing, and agriculture gives employment to an increasingly lower number of people. Moreover, since 2000 the balance of migration from towns to the country has been positive, which has resulted mainly from the process of suburbanisation. GUS data indicate that in the years 2000-2010 the rural population was approximately 338 thousand people (whilst in 1990-1999 it had fallen by approximately 480 thousand). According to GUS projections, this positive balance will continue in the nearest years to come.

Furthermore, regardless of the above-mentioned transformations, the last two decades have witnessed a nationwide dissemination of various kinds of information and telecommunication technologies: personal computers, the Internet and mobile telephony. The development of these technologies, especially the implementation of the solutions facilitating the transmission of data in digital form, is creating increasingly better possibilities for the reception of information and communication from distance. At the same time, for the last five years the process of the interpenetration of previously-separately perceived technologies and services has been taking place. These processes, called the convergence of media, telecommunication and modern technologies, augmented by the digitisation of the sector, influence, and will continue to influence, the way of functioning in society. Science, work or entertainment in the convergent and digital world will be based on completely new models of the functioning of society. We are also witnessing the replacement of prevalent communication technologies - from stationary telephones to mobile ones and from dial-up access to broadband access to the Internet. In the future one may expect further growth in the importance of digital data transfer solutions, although the possibility of new, unexpected technological breakthroughs and innovations in the area of new technologies cannot be ruled out.

On the one hand, filling civilisation gaps, the modernisation and growth in the average size of agricultural farms, as well as the increasing disagrarisation, are contributing to a gradual disappearance of differences regarding the standards of living in the country and in the town, but on the other hand, the average agricultural farm still receives income at the level of approximately 70% of the average urban household and approximately 50% of a household in a city with a population of over 500 thousand inhabitants. The income of the rural population is also greatly influenced by the contribution of social transfers. Polish rural areas are becoming more and more differentiated regarding the sources of income of the population, the structure of the volume of agricultural farms, the pace of demographic processes and the scale of internal and external migration. The issues concerning the development of regions which are dominated by small self-subsistent farms are different from those regarding the areas within the range of influence of large cities.

It should also be noticed that within the next years new aspects of social exclusion are going to appear. This will need a change in the current approach to exclusion, perceived mainly from the perspective of poverty. Both the society of the urban and rural environment should be aware that the appearance of such exclusion as the one concerning broadly-conceived digital technology, or education status (e.g. command of foreign languages), state of health (e.g. obesity) may be a serious issue in a few or a dozen years.

Despite many positive changes that have occurred in recent years in rural areas, differences between the country and urban areas are still considerable. The disproportions are not only connected with the level of income and the access to public services but also the level of human capital, which is usually identified with the characteristics of individuals. These characteristics are formal qualifications (education level), skills, state of health, vital energy and civilisation competences.

In the current conditions, where human capital is becoming more and more important in creating development processes in the economy, the educational activity of the population plays an important role in the range of general transformations, as well as in terms of the individual, defining his/her chances on the labour market and fulfilling his/her professional and cultural aspirations.

Working in the profession of a farmer and managing an agricultural farm also requires knowledge and skills in many fields and on various levels of qualification, as the farmer is both entrepreneur and public goods provider. A farmer managing his/her own agricultural farm usually receives his/her education at school, and his/her practical knowledge from parents and the rural environment (through observation of the behaviour and actions in specific tasks) and skills, which he acquires through own experience while engaging in the subsequent activities on the farm. In addition, together with the implementation of the CAP mechanisms in the Polish agricultural sector, there has appeared the necessity, on the producers' side, to adjust to new conditions of operating agricultural activity, along with the demand for knowledge and skills in the planning and implementation of the modernisation processes of production units, as well as in the use of social instruments and resources supporting income and environmental protection.

In this context, one of the basic issues connected with the development of rural areas and agriculture in recent years, and at the same time the main subject of the analyses in the task "Human Capital in the Processes of Structural Changes in Rural Areas and Agriculture" (realised under the title "Changes in the Socio-economic Structure of Rural Areas as a Factor in Competitiveness" - the Multi-annual Programme of IAFE-NRI [the Institute of Agricultural and Food Economics - National Research Institute] 2011-2014) is defining the trans-

formations occurring in the field of basic rural structures determining the level of rural and agricultural development. This article is the first report developed as a result of the above task in the years 2011-2014, which deals with the conditions of the development of human capital in rural areas. The article (within the research) bases its approach on the assumption that the selected determinants of human capital are among the main factors influencing the divisions in or distinguishing specific groups of rural population and their adjustability to function in the modern global society.

This article features accumulated and analysed theoretical aspects concerning human capital (Chapter 1), and also analyses the selected determinants of human capital in rural areas in Poland in the initial years of the accession of Poland to the EU (Chapter 2). The analysis was performed to measure the level of education and chosen aspects concerning the skills and civilisation competences of the population. The next section of this article focusses on the socio-demographic structure and professional activity of the population from agricultural farms with varying competitive abilities (Chapter 3). This section discusses, inter alia, the issues regarding the demographic features and gross enrolment level of farm managers.

Source data is derived from the GUS mass statistics from the years 2000-2011, the survey of IAFE-NRI 2000, 2005 and Social Diagnosis[1] 2005, 2007, 2009, 2011.

Agnieszka Wrzochalska

[1] See: Social Diagnosis 2009. The conditions and quality of life of Poles, J. Czapiński and T. Panek (eds.), The Social Monitoring Council, Warsaw 2009. www.diagnoza.pl

Michał Dudek, Paweł Chmieliński

Chapter I.
The importance of human capital – theoretical remarks

1.1. Human capital theory

For a long time, the theory of human capital has been considered as renowned and influential in the explanation of social and economic reality[2]. This fact should be associated not only with its internal coverage, but also its attractiveness and relevance to the nature and dynamics of the transformations of contemporary societies organised on the basis of market economy rules. Assuming the belief in the irreversible and definitive meaning of modern capitalism in the organisation and the functioning of the global economy as correct, the key challenge to the communities of individual countries is the issue of competitiveness[3]. In this perspective, it is believed that a key role in competing on local, regional, national and international markets is played by the resources of knowledge and information[4]. Operating in the contemporary economic reality requires more support on the aforementioned factors than on natural resources or physical expenditures[5]. This means that, from the economic point of view, the relatively most optimal strategy, on both the individual and collective levels, is to make such investments in people, which create the capabilities to produce, process and use information[6]. Such activities may include various forms of activity, from the most obvious, such as schooling in the context of the education system, to the relatively less evident – care for the health and mental well-being or develop-

[2] P. Fitzsimons, Human capital theory and education, in: Peters M., Ghiraldelli P., Zarnic B., Gibbons A. (ed.), Encyclopaedia of philosophy of education, 1999, http://www.ffst.hr, 12.11.2011.
[3] There are interpretations according to which the acceptance by the economic researchers of the so-called main trend of the capitalist system as natural directly refers to Marxist theory. The opinion considering capitalism as a continuously constructed and reconstructed system is opposite, cf. Block F. (2002), Rethinking capitalism, in: Woolsey-Biggart N., Readings in economic sociology, Blackwell Publishers Ltd, Oxford, p. 220.
[4] M. Porter, Building the microeconomic foundations of prosperity: findings from Business Competitiveness Index, in: the Global Competitiveness Report 2003-2004, World Economic Forum, Geneva 2003, p. 32.
[5] W.W. Powell, K. Snellman, The knowledge economy, Annual Review of Sociology, t. 30, Stanford University 2004, p. 201.
[6] M. Castels, Network society, PWN Scientific Publishing, Warsaw 2007, p. 85.

ment of competences associated with the use of information and communication technologies (ICT). Investments in such areas, which decide the current and future level of prosperity, constitute the central point of the human capital theory. Besides the positive impact on economic growth and competitiveness, the significant role of the elements composing human capital in public policies is being increasingly emphasised.

The existing social inequalities create barriers to human development, since they affect the depreciation of human abilities, which on a macro scale can negatively influence economic growth[7]. The deployment of the appropriate attributes highly valued by the market, such as in-demand competences and abilities, increases the odds on employment and constitutes good security in against social exclusion and various forms of discrimination[8].

In the most general manner, the theory of human capital involves the description and explanation of economic and social reality associated with the issues of employment and the utilisation of labour resources[9]. Its source is general economic theory, in particular the issues associated with capital. In the most general sense, capital has been defined as aggregate labour[10], a material factor resulting in income, allowing the creation of goods and services[11]. It has been associated most frequently with physical objects. The common association of man with capital, an entity of economic activity organising the use of various resources entailing the generation of value, happened later. It resulted from the conviction that the factor significantly diversifying the wealth level of individuals or countries is not only the pace of the accumulation of physical capital, but also certain characteristics attributed to man[12]. Since this time, the characteris-

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[7] E. Mikuła-Bączek, Znaczenie nierówności społecznych dla akumulacji kapitału ludzkiego I wzrostu gospodarczego (The significance of social inequalities in the accumulation of human capital and economic growth), in: Kopycińska D. (ed.), Human capital in a knowledge-based economy, Faculty of Microeconomics, the University of Szczecin, Szczecin 2006, p. 108.

[8] A. De la Fuente, A. Ciccone, Human capital in the global and knowledge-based economy. Final Report, Employment and European Social Found, Luxemburg 2003, p. 6.

[9] W. Jarecki, The concept of human capital, Kopycińska D. (ed.), Human capital in the economy, Polish Economic Society, Szczecin 2003, p. 30.

[10] K. Marx, Economic and philosophical manuscripts from 1844, in: Marx K., Engels F., Works, volume 1, Książka i Wiedza Publishing, Warsaw, in: Filipowicz S., Mielczarek A., Pieliński K., Tański M., History of political ideas. Selection of texts, UW Publishing, Warsaw 1981, p. 413.

[11] R. Bartkowiak, Historia myśli ekonomicznej (The history of the economic concept), Polish Economic Publishing, Warsaw 2008, p. 33, 40.

[12] Despite the fact that beliefs in the significance of human capital in the creation of individual and national prosperity was shared by the economists of the 17th, 18th and 19th Centuries, it was not until the second half of the 20th Century that this idea was expanded, depicted in theoretical models and found positive empirical verification, cf. K. Cichy, Human capital in the

tics such as knowledge or abilities began to be considered as elements significantly affecting the productivity or profitability of labour. In contrast to other types of capital, it was "discovered" that the nature of human capital is not only developmental, but also ascriptive – it can be multiplied, and it is impossible to separate anyone from it as in the case of other capitals[13]. This is why actions such as gaining occupational experience or learning, aimed at expanding the economic opportunities of people in various markets, have been recognised as self-investment[14]. It should be noted that this approach is based on a strong assumption about human nature. An individual does not use its financial resources for pointless consumption in order to satisfy personal, immediate pleasure, but in order to achieve future financial and non-financial profits. In this perspective, each action should be placed under observation[15].

Further development of the human capital theory was associated with the economists' observation of the positive dependency between investing in education and the level of income in comparison to expenditures oriented towards other production factors. The analyses conducted at the national level proved the conditioning of the prosperity and social and economic development levels by the diverse characteristics of individual societies in the field of human capital. At the present stage, the output of research in this area is very extensive. Despite initial resistance, both the definition of human capital and the theses and conclusions formed in terms of this paradigm not only permanently entered the world of science, but also became a significant foundation for policy creation and the conduction of public debates, as well as part of common knowledge. The general expansion of the achievements of the human capital theory was not disturbed by its ambiguousness, multi-aspectual nature or lack of a uniform research methodology.

1.1.1. Microeconomic approach

It is possible to distinguish several trends and dimensions in human capital theory, but the historically first, classic, version is situated in the field of methodological individualism, and assumes the formation of values with eco-

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models and theory of economic growth, Ph.D. Studies Notebooks, Department of Economics, Notebook 23, AE Poznań 2005, p. 5-12.

[13] G.S. Becker, Human capital. A theoretical and empirical analysis, with special reference to education. Third edition, Chicago University Press, Chicago-London 1993, p. 16.

[14] T.W. Schultz, Reflections on investment in man, Journal of Political Economy, v. 70, no. 5, pt. 2, The University of Chicago Press, Chicago 1962, p. 1.

[15] M. Blaug, The empirical status of human capital theory: a slightly jaundiced survey, Journal of Economic Literature, v. 14, no. 3, American Economic Association 1976, p. 829.

nomic significance through the defined actions of an individual aimed at realising personal interests[16]. Therefore, the classic form of human capital theory involves microeconomic depiction. In this case, the main principle is the fact that man makes self-investments in order to expand productivity, thus income. This investment is made in attributes responsible for learning. They are identical to other types of resources involved in the production process[17]. As with all investments, self-investment is also burdened with costs. In this case, the costs involve not only educational fees, but also the loss of opportunities for the relatively earlier initiation of gainful employment. Accepting the assumption of human rationality, there is an optimal choice made in each case between the income amount and education costs. The above principles serve as the foundations for the microeconomic depiction of human capital by J. Mincer. Mincer expressed human capital in the form of **education** (duration of the education period) and **age** (reflection of professional experience). These two factors are intended to affect the achievement of the individual's goal, i.e. income at a defined level. The J. Mincer theses can be expressed with the following formula:

$$\ln W_i = \alpha + \theta S_i + \gamma e_i + \mu e_i^2 ,$$

where:

W – earnings;
θ – profit from education;
S – duration of the education period;
e – age (duration of professional experience).

The first significant conclusion produced by J. Mincer's principles was based on the statement that professions requiring relatively longer educational preparation translate into relatively higher earnings. The second conclusion involves the positive influence of occupational experience on income, but only to a certain critical point, after which its impact on earnings is negative[18]. Several

[16] M. Blaug, The empirical..., op. cit., p. 830.
[17] D.W. Livingstone, The limits of human capital theory: expanding knowledge, informal learning and underemployment, Policy Options, IRPP, Montreal 1997, p. 9.
[18] J . Mincer, Investment in human capital and personal income distribution, Journal of Political Economy, v. 66, no. 4, The University of Chicago Press, Chicago 1958, p. 301.

empirical studies document the positive, although relatively diverse, impact of the education level on income in various periods and countries[19].

T. Shultz mentions human capital as an **investment category**, expressing it as the sum of financial expenditures made for education. This researcher analysed the influence of financial expenditures on the growth of remuneration. The influence of investments in education turned out to be a significant determinant of the income volume of individuals. At the micro level, T. Schultz also studied the effectiveness of investments in human capital (expressed as the relation of additional remuneration for occupational activity to additional education costs). In the accounted periods, he obtained the highest relations by comparing additional remuneration with supplementary education at the basic level, and the lowest at a higher level[20].

A significant contribution to the discussed issue was made by the analyses of G. Becker, also focussing on the widely-understood issue of investing in human capital[21]. The theory and models created by this author find applications in many aspects of human capital and may be used in the interpretation of phenomena at various levels. Among other things, they assist in the explanations of income diversities among people depending on age, occupational specialisations, abilities, or in the area of individual economy sectors. The research by the American economist indicates that the income of relatively older people is determined in a positive manner through **participation in occupational training**, type of education or economic **spatial mobility**, since the profit from such activities is part of the earnings at a later stage of life. Meanwhile, relatively younger individuals do not achieve such benefits, since at their age remuneration is reduced by the incurred investment costs[22]. Regardless of this, G. Becker's research proves the substantial **role of higher education**.

First, the conducted analyses document that, in comparison to people who had graduated from secondary schools, the graduates of universities were more

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[19] For example, the surveys of European societies showed that the highest benefit from education was achieved in Ireland (12%) and the lowest in Scandinavian countries (approximately 4%). The European average was 6.5%, cf. A. De la Fuente, A. Ciccone, op. cit., p. 11.

[20] W. Jarecki, W kwestii szacowania efektywności kształcenia metodą T. W. Schultza (The issue of assessing the effectiveness of educating with the method of T. W. Schultz), in: M. Kunasz (ed.) (Problemy gospodarowania w dobie globalizacji) Problems of management in the era of globalisation, Faculty of Microeconomics of the Szczecin University, Szczecin 2006, p. 36-43.

[21] This author took on the influence of investments in vocational training on the level of remuneration, introducing significant distinction into general training (the training participant may use the obtained knowledge and skills in many workplaces) and specialist training (increasing productiveness only in a specific workplace), cf. G.S. Becker, Human capital.., op. cit., pp. 31, 246.

[22] G.S. Becker, Human capital.., op. cit., p. 245.

intelligent, healthier, achieved a higher income, and were more developed in the field of social competences. Second, as shown by the research, the rate of return from private investments in education at a higher level exceeded the rate of return from other forms of capital[23]. As noted by the referred researcher, income is not influenced by all investments in human capital, since the associated costs and profits are characteristic only of enterprises, professions or countries employing specific employees (i.e. specialist investments). This explains the fact of a higher unemployment rate among non-qualified workers compared to qualified labourers. The latter were covered by **occupational training** provided by employers, who for this reason were not eager to part with their services.

B. Weisbrod pointed out a significant aspect of human capital. In his opinion, such actions, in contrast to the previous ones and based on non-material investments in man, condition and influence not only technical progress and economic growth, but also the improvement in **health, prosperity**, and creation of numerous **social benefits**[24]. Previously, the attention of this context was turned to the rates of return from education and earning potential. B. Weisbrod stated that earnings are not a perfect measure of the educational productivity of the education when the production of education is of a non-market nature. This approach disregards **external effects**. According to B. Weisbrod, the education system is used not only by students. In the latter group, investing in human capital affects the creation of such effects as financial return, financial option – additional value from the possibility of continuing education, non-financial opportunity options – expansion of the employment alternatives, non-market returns – a sense of security, command of reading and writing, hedging opportunities – security against technological transformation, increasing the possibility of adapting to the transformations on the labour market[25]. The process of educating individuals has a positive impact on other people: the family – institutions such as schools provide the possibilities of caring for learning children, the offspring of the students – benefits from the intergenerational transfer of knowledge, neighbours – benefits from respecting the regulations of entering social relations in the local community, colleagues – increased team productivity in the workplace, and the rest of the society – reduction in the costs of executing law[26]. The cost-profit approach to human capital applied by B. Weisbrod focusses

[23] G.S. Becker, Human capital.., op. cit., p. 247.
[24] B.A. Weisbrod, Education and investment in human capital, Journal of Political Economy, v. 70, no. 5, The University of Chicago Press, Chicago 1962, p. 106-123.
[25] B.A. Weisbrod, Education..., op. cit., pp. 108-115.
[26] Ibidem, pp. 116-120.

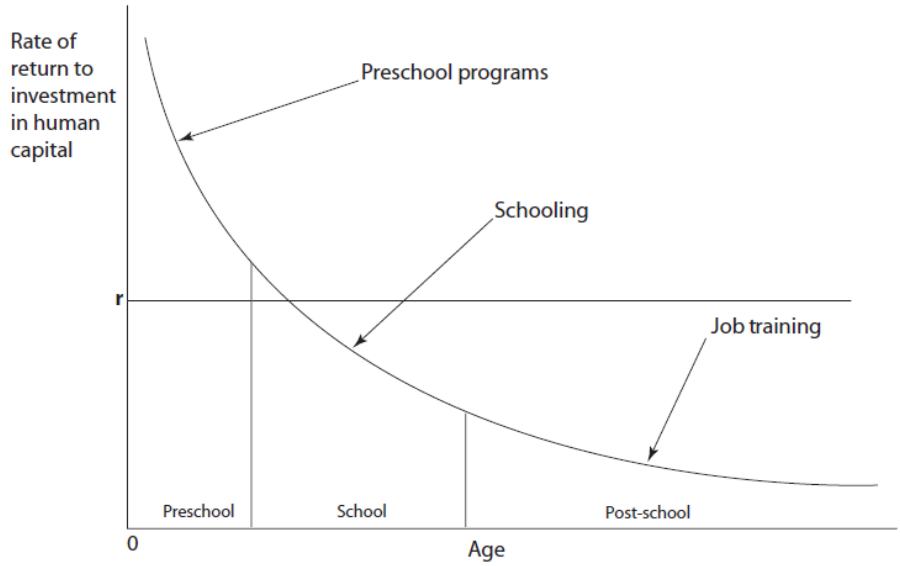
mainly on the benefits from investments[27] and the definition of the category of the beneficiaries of this process.

The theory of human capital was significantly expanded by the accomplishments of researchers concentrated around J. Heckman. They addressed the dynamics of human capital creation and formed the function of ability production[28]. The starting point of their concept is the abandonment of the professionally-popularised division into acquired skills and genetically-determined abilities. Both these elements are *de facto* identical, since they have a complex nature – they are cognitive (e.g. IQ) and non-cognitive (e.g. characteristics such as patience, self-control, temperament, time orientation), depending on the impact of the environment, genes and investments[29]. The formation of skills and abilities is a stage-based process. Each stage corresponds to a defined stage of human life development. The expenditures during a given stage translate into certain results in a specific phase. Some investments are relatively more productive in certain periods, while others produce positive effects if they are conducted at a different time. An important property of this mechanism is the fact that the skills developed during one stage determine the formation of successive ones later. Therefore, skills are mutually connected and complementary. Neglect or improper action can cause irreversible loss and damage further human development. This is why early childhood, according to J. Heckman's research, is the best period to take actions aimed at developing skills and abilities. **During childhood, the return from investments in human capital is much higher than during adult human life** (figure 1)[30]. This is determined by a specific type of distribution of investments in human capital during the life cycle of an individual. The authors of this approach also stress the significance of non-cognitive skills which develop due to appropriate actions during early childhood, for which reason they should be a component in the human capital level evaluation[31]. The differences in the levels of cognitive and non-cognitive abilities in children appear very

[27] The definition of profit applied by Weisbrod is broad and concerns everything that entails the possibility of expanding usefulness, covering such elements as: activities expanding production capacity, activities reducing costs and activities directly increasing prosperity.
[28] B.A. Weisbrod, Education..., op. cit., p. 41.
[29] The IQ level forms up to the approximate age of ten, and in turn non-cognitive abilities can be formed much longer. Contrary to the predominant depictions, the discussed model does not treat IQ level as an innate property, cf. F. Cuhna, J.J. Heckman, L. Lochner, D.V. Masterov, Interpreting the evidence on life cycle skill formation, Disussion Paper Seiries IZA DP No. 1675, Institute for the Study of Labour, Bonn 2005, pp. 8, 22.
[30] The previous models treated childhood as a uniform period and assumed investment substitution regardless of the human stage of life, cf. F. Cuhna et al., Interpreting the evidence.., op. cit., pp. 3, 84.
[31] F. Cuhna et al., Interpreting the evidence.., op. cit., p. 16.

early, have a maintaining tendency[32], and determine the social and economic success of an individual. They are determined by income diversities in families and social origin[33].

Figure 1.1. Rate of return to investment in human capital



Source: F. Cuhna, J.J. Heckman, L. Lochner, D.V. Masterov, Interpreting the evidence on life cycle skill formation, Discussion Paper Series IZA DP No. 1675, Institute for the Study of Labour, Bonn 2005.

1.1.2. Macroeconomic approach

Human capital is the object of contemplations and research not only at the level of individual humans, but also of dimensions exceeding individuals. The macroeconomic approach to this issue primarily measures the level of the discussed factor's influence on the volume of production or the economic growth of individual countries. Moreover, it attempts to assess the social benefits from expenditures on education and measure the value of human capital for entire populations inhabiting given countries for purposes of international comparison. It is stressed that, in contrast to microeconomic orientation, only a macro-scale

[32] Cognitive abilities influence the probability of participating in specialist training and graduating from a university, as well as achieving profit from such activities. Cognitive and non-cognitive abilities also count in the definition of the possibilities of committing crimes, becoming pregnant in teenage years or taking drugs, cf. F. Cuhna et al., Interpreting the evidence.., op. cit., p. 85.

[33] F. Cuhna et al., Interpreting the evidence.., op. cit., p. 16.

depiction constitutes a reliable explanation of global diversities in income or prosperity levels and allows recording of the external effects of investments in education systems, which are considered as public welfare[34]. The macroeconomic approach to human capital substantiated its significant role in the formation of economic growth and GDP *per capita*. The research documented that the economic development of all countries during the second half of the 20th Century would not have been possible without an adequately educated labour force.

Analyses of human capital from the macro perspective are found in the research of T. Schultz, who studied the development of the American economy. He stated that the human capital generated by public investments in education expands quicker than investments in real capital. At the level of entire societies, the developmental disproportions were explained by Becker with the aid of human capital theory. They are associated with diverse levels of human capital resources, which in consequence determine the defined life strategies of families. As stated by Becker, the countries with a surplus of human capital show a relatively higher profitability from acting in favour of limiting fertility and making significant investments in offspring. In countries poor in the discussed resources, an opposite strategy is relatively more beneficial[35].

Human capital has a very important place in **theories of economic growth,** particularly in the field of neoclassical concepts, endogenous growth, growth accounting and international economics[36]. It is treated as an argument for the production function (influencing the size of the product stream) or a factor necessary for technological progress[37]. The recognition of human capital in economic growth models was associated with criticism of the approaches which were unable to satisfactorily explain this value with transformations of capital and labour input[38]. The attempt to modify the neoclassical models[39] in the aspect of **supple-**

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[34] B. Sianesi, J. van Raneen, The returns to education: a review on macroeconomic literature, Centre for the Economics of Education, London School of Economics, London 2000, p. 8-9.
[35] G.S. Becker, Human capital.., op. cit., pp. 347-348.
[36] The criterion of the division of growth models into exogenous and endogenous is the fact of defining a long-term rate of economic growth through values remaining outside and not included in the model, cf. K. Malaga, O niektórych dylematach teorii wzrostu gospodarczego i ekonomii (On certain dilemmas of the theory of economic growth and economics), PTE 2009, http://pte.pl, p. 9, 01.11.2011.
[37] K. Uramek, Taksonomiczne wskaźniki kapitału ludzkiego w niektórych krajach OECD (Taxonomic indicators of human capital in selected OECD countries), Statistical News no. 3 (537), Department of Statistical Publications, Warsaw 2006, p. 16-17.
[38] In the classical model, economic growth depended on the productivity and increase in the input of production factors (labour, land and capital). The new classical models were supplemented with the knowledge and technical progress factor. This allowed recognising the effects of production growth caused by technological progress. However, the determinant of

menting it with human capital is characteristic of the approach of G. Mankiw, D. Romer and D. Weil. In this case, production size was made dependent on endogenous factors: real and human capital resources, as well as the supply and productivity of the labour force, and on the exogenous factor – resources of technological knowledge[40], which was recorded in the form of the following model[41]:

$$Y(t) = K(t)^{\alpha} H(t)^{\beta} \left(A(t)L(t)\right)^{1-\alpha-\beta}, \text{ where } \alpha + \beta < 1$$

Y – production,
H – human capital resource,
A – technology level,
L – labour.

The Solow model[42] elaborated on by the aforementioned authors turned out to be a relatively better fit and explained 80% of income diversities *per capita* on an international scale[43].

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reaching growth is continued to be seen by these interpretations in the process of intensifying capital expenditures in relation to labour, cf. K. Piech, *Wiedza i innowacje w rozwoju gospodarczym: w kierunku pomiaru i współczesnej roli państwa (Knowledge and innovation in economic development: towards the measurement and the contemporary role of the country)*, Institute of Knowledge and Innovation, Warsaw 2009, p. 160, 166-167. It is believed that in the Solow's classical model, the estimated influence of increasing the size of two factors, savings/investments and population number, on production, was too high, which resulted from the omission of a new variable – human capital. A relatively higher level of savings/investments and relatively lower population growth lead to relatively higher income. However, as documented, they originate from the high level of human capital. If the latter factor is considered, the impact of physical capital and population growth on income is relatively higher. Furthermore, the accumulation of human capital is associated with the growth levels of savings and the population number. The omission of human capital in growth theories is associated with the reassessment of the influence of material investments and labour on income diversity, cf. G.N. Mankiv, D. Romer, D.N. Weil, A contribution to the empirics of economic growth, The quarterly journal of economics, v. 107, No. 2, Oxford University Press 1992, p. 409.

[39] According to the neoclassical model of economic growth of Solow, the stream of the created product depends on the resources of material capital, the resources of scientific and technical knowledge and the number of workers. The economy drives towards balance, and the growth rate of basic macroeconomic variables corresponds to the growth rate of the exogenous technical progress, cf., T. Tokarski, Efekty skali a wzrost gospodarczy (Scale effects and economic growth), Jagiellonian University Publishing, Kraków 2008, p. 37.

[40] The human capital was operated as a percentage of the production age population educating at the secondary level, cf. G.N. Mankiv, D. Romer, D.N. Weil, A contribution..., op. cit., p. 419.

[41] G.N. Mankiv, D. Romer, D.N. Weil, A contribution..., op. cit., p. 416.

[42] According to the neoclassical model of economic growth of Solow, the stream of the created product depends on the resources of material capital, resources of scientific and technical knowledge and number of workers. The economy drives towards balance, and the growth rate

In theories of endogenous growth, the causes of the non-decreasing profits from capital (economic growth) include such factors as the intentional investments by various entities in education, political activities for the fluent liquidity of production factors or the implementation of technological innovations[44]. These approaches also recognise the appearance of external effects caused by innovations in the defined use of capital. The investments translate into productivity growth, which becomes a social benefit[45]. The approaches of P. Romer and E. Lucas are considered among the significant models of endogenous growth, assigning a high importance to human capital. In the Romer model, **technical progress,** and in consequence economic growth, results directly from the growth in employment in the research and development sector (R+D) (constituting its function)[46]. The quantity of capital goods in the economy depends on the level of scientific and technical knowledge, the creation of which is largely determined by investments in human capital[47].

As an example of the theory of endogenous growth, e.g., E. Lucas examines the accumulation of human capital through education and learning in the workplace[48]. In this case, the macroeconomic function of production depends on real capital expenditures, labour input in the production of goods and services (the time is foreseen for labour and the accumulation of human capital) and human capital resources in the economy[49]. For E. Lucas, the axis of contemplations is the issue of the causes of global diversities in economic development, traditionally understood as the level and rate of income growth *per capita*[50]. Lucas states that the traditional models of economic growth are inadequate for the economic reality[51] and presents two adaptations of standard models recognising the effect of human capital accumulation. The first focusses on the mutual influence

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of basic macroeconomic variables corresponds to the growth rate of the exogenous technical progress, cf., T. Tokarski, Scale effects and economic growth, Jagiellonian University Publishing, Kraków 2008, p. 37.

[43] G.N. Mankiv, D. Romer, D.N. Weil, A contribution..., op. cit., p. 421.

[44] K. Piech, Wiedza i innowacje.., op. cit., p. 172.

[45] T. Tokarski, Efekty skali a wzrost.., op. cit., p. 181.

[46] K. Piech, Wiedza i innowacje.., op. cit., p. 173.

[47] T. Tokarski, Efekty skali a wzrost.., op. cit., p. 165.

[48] Lucas was inspired by the accomplishments of Paul Romer, cf. 171.

[49] The Lucas model contains an average resource of human capital per one labourer and is defined as the general skill level.

[50] R.E. Lucas, On the mechanics of economic development, Journal of Monetary Economic 22, Elsevier Science Publishers, North-Holland 1988, p. 4-5.

[51] In particular, this involves the inability to explain the differences among the countries and assumption of gradual equalisation of the prices of production factors and the relationship of labour to capital by international trade, cf. p. 17.

of physical and human capital within one sector. The second involves the dual-sector system and recognises the specialist human capital in the conditioning of trade and development. The suggestion of E. Lucas assumes a defined rate of population growth and no influence of additional exogenous and endogenous forces. The system is composed of two types of capital: physical, accumulated and utilised in production through common technologies, and human, improving productivity and holding the property allowing the fixed quantity of effort, regardless of the achieved level, to translate into a fixed rate of return from the resources. The dynamics of this system, examined as a separate, closed economy, is based on the fact that the configuration of the level of resources of the two aforementioned types of capital depends on the initial conditions and signifies the same productivity of physical capital. This is why the rate of income growth of all autarkic economies will be the same, which means the preservation of a perfectly stable distribution of income and wealth in time[52]. The introduction of the possibility to trade capital goods, but with the exclusion of the possibility to move the labour force, will not result in a fixed trend of exchange between rich and poor countries. However, with the introduction of the mobility of the labour factor, the exchange depends on whether the influence of human capital is internal (influence only on the productivity of the owner) or external (causing external benefits and distribution among the population). Only in the second case, regardless of the skill level, will the rate of labour income grow with the rising wealth level of the employing country, which will entail a flow of labour resources from poor to rich countries. The Lucas model corresponds to the situation in the American economy in the 20th Century and does a good job of describing the situation of the global economy, which has deep diversity in the level of income, fixed growth of income level *per capita* and lack of a trend of systematic diversion of growth rates with various income levels. The E. Lucas system also reflects the large scale of the **global migration phenomena**. According to this researcher, migration pressures exist during preserving diversities in productivity associated with the levels of human capital[53]. The second, dual-commodity model, proposed by E. Lucas, intends to explain the diversity in the income growth rates within countries and provides relatively more interpretational possibilities. In this system, the accumulation of human capital acquired though education in the workplace is appropriate for the production of a specific type of goods. If certain goods are associated with the specific potential of human

[52] R.E. Lucas, On the mechanics.., op. cit., p. 39.
[53] Ibidem, p. 40.

capital growth, the comparative advantage of a country is defined by the allocation of production in a given place and the accumulation level of human capital.

The diversity in the level of economic development of individual countries is also explained through the regression function, which considers various independent variables, one of which is human capital. Besides human capital, the independent variables of such models include the initial GDP value, the rate of investments in physical capital, geographical location, political stability and the level of government activity. In this case, the explained element is the productivity measure, i.e. economic growth expressed in GDP per capita (or per employee).

There is a commonly popularised opinion that there was a technological revolution during the second half of the 20th Century associated with instruments for processing information and communication, which influenced the previous forms of organising societies and manners of the functioning of units within them. The close association between technological progress and economic development was noted, among others, by R. Nelson and E. Phelps. According to these researchers, human capital plays a key role in the process of **adapting production innovations**. It allows relatively improved functioning in transforming technological environment. According to these researchers, the dominating theories are those in which the production function presents its maximum value depending on the stream of capital and the stream of labour performed by people with specific educational accomplishments (their weight is the function of education and time). Such depictions assume that someone with a higher level of education is an ideal substitute for a person with an inferior education[54]. Therefore, in this case, the extreme productivity of education is a function of expenditures and the available technology, and may be positive even if the technology remains the same. In the model of R. Nelson and E. Phelps, the extreme productivity of education is only positive when the technology is developing. However, progress is conditioned by the adaptation of new solutions by the production manager, which benefits from adequate educational preparation[55]. The general conclusion from the contemplations of the aforementioned authors presents the **conditioning of technological progress,** and in consequence, the dynamics of production through the quality of human capital[56].

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[54] R.R. Nelson, E.S. Phelps, Investment in humans, technological diffusion, and economic growth, The American Economic Review, v. 56, no. 1 and 2, American Economic Association, Nashville 1966, p. 69.

[55] The delay between the creation and adaptation of the new technology is a declining function of the average educational achievements of a person potentially able to implement innovation, i.e. the intensiveness of human capital, cf. Nelson R.R., Phelps E.S. (1966), p. 72.

[56] R.R. Nelson, E.S. Phelps, Investment in humans.., op. cit., p. 75.

Technological progress also plays a key role, not only in economic, but also social, processes. It is noted that it composes a significant element in the education of the network society, i.e. the social structure based on information networks, the infrastructure of which is composed by new technologies[57]. An attribute of the new social model is the different structure of employment and the occupational structure (compared with the previous ones), which is subject to progressing diversity. Activities based on the generation of knowledge, the processing of information or working with symbols are becoming relatively most profitable, since they are the ones with the most influence on productivity growth. These factors are the components of professions requiring special preparation and **competences in the application of new technologies**. The competences associated with the use, creation and processing of information are also becoming important not only for economic, but also social reasons, particularly in reference to establishing and preserving non-economic relations. A characteristic property of contemporary communities organised on the basis of network structures is the exclusion from access to new technologies, including the ICT infrastructure, of a significant population number. One of the most important factors currently influencing social diversity is the unbalanced distribution of the said resources[58] and information of economic value, since the ICT introduces new qualities into the processes of production and distribution.

They are becoming a measure of functioning on the market. Remaining outside of the discussed network structures due to lack of access to appropriate tools, or lack of specific qualifications may influence the impairment of individuals, since this determines their access to valuable resources and defines their economic opportunities in the future.

Considering the issue of human capital, it is impossible to omit the problem of its balanced utilisation[59]. Much like in the case of managing natural resources, it is of noted significance that the production of goods and services be

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[57] K. Smith, What is the "knowledge economy"? Knowledge-intensive industries and distributed knowledge bases, article presented at the conference *The learning economy – firms, regions and nations specific institutions,* 2000, http://www.druid.dk, 01.11.2011, p. 5.

[58] The essence of the transformation of the information society is technologies and their interactions with the economic and social system. The new technologies mean information is the object of the processes, and, not like previously, an element serving only technology. The influence of new technologies is common, since they comprise a tool mediating in the use of information. The system based on them operates according to network logic, which is interactively flexible, complex and unpredictable. Due to the dynamic development of the network, staying outside it is costly due to the loss of opportunities it offers, cf. M. Castels, Społeczeństwo sieci (Network community), PWN Scientific Publishing, Warsaw 2007, p. 47, 79.

[59] P. Ekins, S. Dresner, K. Dahlstrom, The four-capital method of sustainable development evaluation, Eur. Env. 18, Willey InterScience 2007, p. 63-80.

conducted in ways with no negative impact on humans. Such negative consequences may appear due to the drive of production entities to achieve competitiveness by decreasing the social and cultural value (welfare)[60]. Continuous production growth may turn out problematical. It is projected that by 2050, the global population will number 9.2 billion, which may result in the growth in the demand pressure, for example, in the fields of agriculture, consumption of natural resources and energy[61]. The need to expand global production requires not only an improvement in labour capacity, but also the implementation of innovations and modifications into existing technologies, which cannot be achieved without increasing expenditures on education, research and development[62]. These investments will likely not produce the desired results, since the capabilities of dynamic technological progress, on a scale similar to that of the past, are limited. It is believed that this situation involves the research and development sector[63].

1.2. Methods of measuring human capital

One of the main problems of the human capital theory refers to the issue of measurement. Human capital is an entity unable to be observed, which translates into the inability of its direct depiction. A way to solve this problem is the consideration of the symptoms proving its existence. One of the classifications of the theory and empirical research into human capital deserving mention is the division into the micro and macroeconomic approach. This classification trans-

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[60] J.S. Zegar, Konkurencyjność rolnictwa zrównoważonego. Zarys problematyki badawczej (The competitiveness of balanced development. An outline of the research problems), in: Zegar J.S. (ed.), From research into socially balanced agriculture (11), Report No. 3, Multiannual Programme 2011-2014, IAFE-NRI, Warsaw 2011, p. 16-22. Social and cultural welfare refers to, among others, the defined utilisation of agricultural labour resources, cf. J.S. Zegar (ed.), Koncepcja badań nad rolnictwem społecznie zrównoważonym, Raport nr 11 (The concept of research into socially-balanced agriculture, Report No. 11), Multiannual Programme 2005-2010, IERiGŻ-PIB, Warsaw 2005, p. 9.

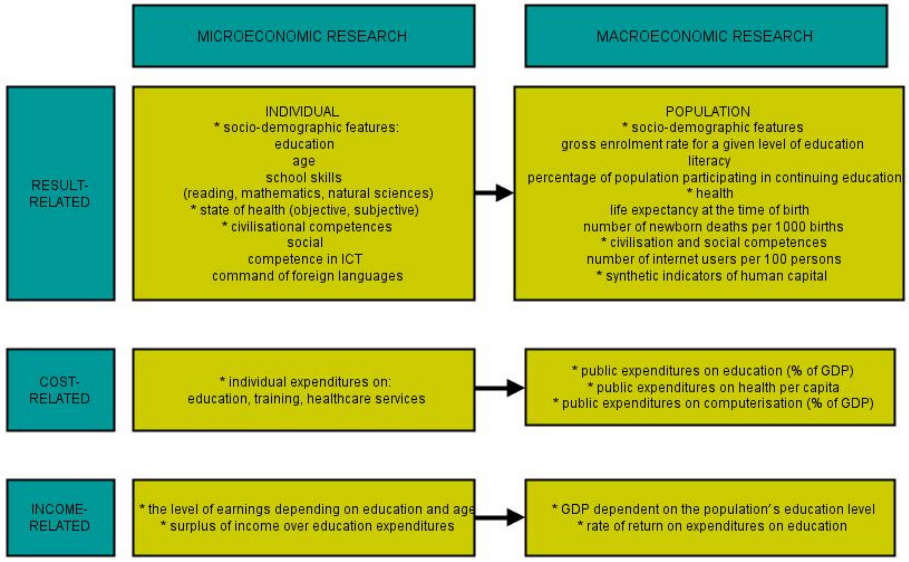
[61] Sustainable food consumption and production in a resource-constrained world (2011), 3rd SCAR Foresight Exercise, Studies and Reports, European Commission, Directorate-General for Research and Innovation, Brussels, p. 25.

[62] J.B. Hardaker, Guidelines for the integration of sustainable agriculture and rural development into agricultural policies. FAO agricultural policy and economic development series 4, Economic and Social Development Department 1997, http://www.fao.org/docrep, 12.11.2011.

[63] G. E. Schuh, S. Archibald, A framework for the integration of environmental and sustainable development issues into agricultural planning and policy analysis in less-developed countries, in: Breth S.A. (ed.), The Integration of Sustainable Agriculture and Rural Development Issues into Agricultural Policy, Winrock International Institute for Agricultural Development, Morrilton 1996, Arkansas, p. 22.

lates into diverse measurement methods. In both approaches, the numerous variables representing the human capital are taken into consideration. Depending on the aspect, this variables are usually the socio-demographic characteristics: education level, age, health, skills.

Figure 1.2. The classification of the selected methods of measuring human capital in micro and macroeconomic research



Source: own elaboration.

In the most general manner, the output method is based on analysing the participation in the education system of individuals or communities. The representation of human capital considers, e.g., the number of education years, the scale of recruitment at specific levels of education and the age of starting professional activity. The cost method determines the individual expenditures invested in education. The income method involves the rate of return achieved on the labour market due to a specific education path. Therefore, the classic research assumed quantitative variables as indicators of human capital.

Semantically, despite the fact that human capital should be inseparably associated with a single person, the mode of its examination at supra-individual levels is widespread. Various types of its indicators are aggregated for households, companies, public institutions and non-government organisations, units of geographical (communes, voivodeships, regions) and even political administration divisions – national states. They serve as the basis for quantifying human capital resource for a specific analytical unit. The foundation of the diverse level

of capital analysis is the assumption of a relationship between the use of this resource at the macro and micro levels[64], as well as that it is a property possible to directly aggregate to higher analysis levels.

In the macroeconomic approach the human capital category is the explained variable is primarily the category of the gross domestic product. Human capital is usually represented by the level of education, as an explanatory variable, beside the labour input or capital value. It is emphasised that macro level research holds numerous limitations. First, these depictions recognise the usually narrow definitions of human capital, based on the education level of the population, omitting wider depictions of the discussed concept with occupational experience or training. Second, the broad approach ignores the increasingly important quality of educational preparation. Third, such research contains the problem of data quality and comparability. The countries are on various development levels and their educational systems are often diversely organised, stressing the teaching of other information or skills. For this reason, it is difficult to perform comparisons with a single, standardising indicator. Fourth, there is the significant problem of the relationship between economic growth and the education level of the population. The reversal of the causation orientation is also probable. The correlation between these variables may reflect not only the educational demand of the communities (income growth causes consumption growth and higher education expenditures), but also the supply effect – increases in government investments in education systems, making such institutions relatively more accessible[65]. In conducting research at the level of entire communities, the problem of data quality and accessibility in public statistics systems of individual countries should also be remembered.

Many of the aforementioned measures are considered as inadequate representations to conduct measurements of the human capital level. This is the reason for the interest, at both the micro and macro levels, in the field of the resulting group of human capital measures, in its taxonomic methods[66], which allow the connection of many aspects of this phenomenon. Regardless of this, the measurement of human capital with synthetic indicators does not resolve the aforementioned problems, since we should remember that we are dealing with an arbitrary phenomenon, not easily susceptible to categorisation.

1.3. Criticism of the human capital theory

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[64] W. Jarecki, The concept.., op. cit., p. 30.
[65] B. Sianesi, J. Van Raneen, The returns.., op. cit., p. 10.
[66] W. Florczak, Miary kapitału ludzkiego w badaniach ekonomicznych i społecznych (Measures of human capital in economic and social research), Statistical News No. 12 (537), Department of Statistical Publications, Warsaw 2006, p. 62.

Criticism of the human capital concept has been raised from various viewpoints. One of its earliest trains of thought refers to the ethical dimension and accuses the discussed theory of dehumanisation tendencies. At first view, the depiction of humans as capital goods seems to contrast with commonly accepted values[67]. According to this way of thinking, human knowledge and skills cannot be a form of capital, since the human labour applying them should not constitute a commodity[68].

A reservation completely opposite to the aforementioned view is directed to the theory of human capital, stating that it is not a concept devoid of values, but rather saturated with them. It is based on the vision of the human individualist, driven by specific ethics of the accumulation of material and non-material resources, accurately foreseeing the future and delaying consumption. The defined image of the individual is accompanied by a certain opinion of the market, which holds symbiotic relations among the people, where everyone receives deserved rewards. According to this interpretation, the theory of human capital presents a vision of an equal opportunity society with no divergences[69].

There is also the opinion that the human capital theory is a vague concept, connecting various incommensurate elements, such as health, human character characteristics, education level and skills, which cannot be combined. Each of these elements has a different origin and may play a different role in the context of operating on the labour market[70]. Continuing, the reservations which can be directed to the human capital concept involve the omission of the labour market specifics. It is believed that the level of earnings is not affected only by individual characteristics such as education length, occupational experience or type of completed trainings, but primarily the structural conditions resulting from the heterogeneity of this market, since it is divided into internal and external segments, which have diverse methods of employee recruitment, motivation and control, as well as career development opportunities[71]. The existence of an inter-

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[67] W. T. Schultz, Investment in human capital, The American Economic Review, v. 51, No. 1, American Economic Association 1961, p. 2.

[68] According to this position, labour is not a commodity, but a type of human activity assumed for purposes other than trade. Furthermore, it is not possible to separate it from other aspects of human life, to store and collect it, cf. K. Polanyi (), Great transformation. PWN Scientific Publishing, Warsaw 2010, p. 88.

[69] S. Steinber, Human capital: a critique, The review of black political economy, v. 14, No. 1, SpringerLink 1985, p. 68.

[70] S. Steinber, Human capital.., op. cit., p. 69.

[71] W. Kozek, Socjologia rynku pracy (The sociology of the labour market), Institute of Sociology of the Warsaw University, Warsaw 2007, p. 107.

nal labour market results from company actions aimed at limiting costs and minimising the risks associated with the employment of new people. Regardless of the human capital level, the people within the internal labour market are in a relatively privileged position, as they hold an informational advantage over the individuals pursuing specific positions and not affiliated with a given company.

The view of many economists on the issues of human capital leads to treating education as a simple economic investment. They are not capable of explaining the diverse investment strategies of individuals or social classes. Due to the diversity of held economic capital (the number and structure of specific resources), certain individuals and groups have privileged access to the profit opportunities offered by various markets. As a result, the factor of transmission of **cultural capital** within the family, which has a significant impact on educational investments, is omitted[72]. The functional interpretation of the education system in the field of the classic and neoclassical economics fails to record a different role – reproduction of the social structure by, among others, inheriting the aforementioned type of capital which is invested in the offspring within families long before the beginning of education in schools, thus making it inadequate in the description of the phenomena occurring on the labour market.

The discussed accusation can be examined in a wider context, referring to excessive generality and ahistoricity. Most often, human capital is examined as if it is formed beyond the social and historical context. Elements such as education, training, raising children or health are significant not only in regard to production, but also play a key role in the preservation of the economic and social order[73]. Therefore, in discussing economically-productive abilities, the human capital theory does not recognise the issue of their sources, acquisition methods and objectively existing limitations (institutions, social structure)[74].

As depicted by the human capital theory, the elements composing the attributes of an individual with economic value constitute characteristics assigned only to that individual. This depiction seems to assume that the achievement of a given economic objective depends exclusively on the various characteristics (potential) of this individual. Such an approach, e.g. in structural depictions, is considered static, since it assumes that human activity in the economic domain is predefined by specific attributes – characteristics, positions, roles and scenar-

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[72] P. Bourdieu, The forms of capital, in: Woolsey-Biggart N., Readings in economic sociology, Blackwell Publishers Ltd, Oxford 2002, p. 282.
[73] S. Bowles, H. Ginitis, The problem with human capital theory: a Marxian critique, The American Economic Review, v. 61, 2/1975, p. 75.
[74] S. Steinber, Human capital.., op. cit., p. 73.

ios[75]. Resulting from this, all activities undertaken by individuals can be successfully predicted, but this seems to be not entirely right in the field of the discussed position. The theory of human capital disregards the role of the market relations among entities, particularly the modes of their modelling, positioning the unit in a network or its structure[76]. The above reservation is associated with the issue of social capital, which also has economic significance, but is not considered in the theory of human capital.

A significant accusation which can be made towards the human capital concept entails the importance and interpretation of formal education within its framework. School education is usually considered as the main and universal source of obtaining the discussed resource. This leads to the problem of omitting other significant factors affecting human development (e.g. geographical location, fertility, organisation of the economic system), as well as the consideration of the quantitative rather than the qualitative aspect of education. In this context, the phenomenon of credentialism deserves a mention. The traditional macro and microeconomic theories fail to differentiate the value of the same number of educational expenditures – one year of education raises the skills and qualifications by the same level, regardless of the education system governing a given society or a specific approach to education. However, the research shows that the quality of education has more impact of the level of individual earnings and the GDP rate growth than its number of years[77].

The cognitive value of the theory should be assessed in comparison with other competitive ones. In comparing the human capital theory to the concepts with reservations to it, it should be stated that it has an explanatory power and is constructed in a systematic and cohesive way. This does not change the fact that, on the basis of the aforementioned comments, it is possible to extract the empirical postulate to attempt to study human capital, particularly at the micro level, in its specific aspect, each time noting its characteristics (sources of ori-

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[75] M. Granovetter, Economic action and social structure: the problem of embeddedness, American Journal of Sociology 1985, v. 91, No. 3, p. 487-490.

[76] B. Wellman, Structural analysis: from method and metaphor to theory and substance, [in:] Wellman B., Berkowitz S. D. (ed.), Social structure: a network approach, Cambridge, Cambridge University Press 1988, p. 20-21.

[77] At the level of the unit, the improvement in the result of the education test by one standard deviation translated on average into a rise in income by 9.3%, while on a national level, the improvement in the PISA exam result by one standard deviation raised the long-term economic growth rate by 2 percentage points. However, it should be added that, in the field of the macroeconomic approach, despite the documentation of the positive correlation between education expenditures and economic growth, in this case it is impossible to discuss the substantiation of the cause and effect relationship, cf. E.A. Hanushek, L. Wossmann, Education quality and economic growth, The World Bank, Washington D.C. 2007, p. 3-7.

gin, structural limitations) and the level of its impact on the achievement of specific results[78].

1.4. The essence of human capital

The presented theoretical contemplations and empirical research on human capital contain different definitions of it. This concept is usually associated with the level of education or the set of held qualifications, acquired during occupational experience. According to OECD, human capital is the *"productive wealth embodied in labour, skills and knowledge, facilitating the formation of individual, social and economic prosperity"*[79]. The OECD definition can be considered as rather general, since it does not specify the types of human characteristics which comprise its capital[80]. Additionally, this method of defining human capital limits the possibilities of its examination to only one area – economic reality. As indicated by the previously mentioned depictions, human capital should be depicted in a broad manner and should not be related only to the market space. According to M. Ziółkowski, it should be defined as the general assets of the individual, allowing the improvement or preservation of the individual's position in various systems, not only economic, but also social, cultural or political. Such assets provide the individual with the opportunity to realise personal interests, values and goals[81]. In this context, the components which should be included in the semantic field of the discussed concept include the following:

- genetically-determined personality traits and abilities,
- skills, knowledge, characteristics transferred by the family and the environment during the raising process and by the education system (education),

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[78] S. Steinber, Human capital.., op. cit., p.73.

[79] B. Keeley, Human capital. How what you know shapes your life, OECD, OECD Insights, Paris 2007, p. 29.

[80] In this context, the significant classification concerning the discussed definition refers to the segregation into general and specific human capital. The first is gained mainly through the process of common education and can be useful regardless of the field of the economy. The second, on the contrary, is accumulated through participation in specialist training during a specific vocation, thus making it difficult to use in other sectors.

[81] cf. M. Ziółkowski, Przemiany interesów i wartości społeczeństwa polskiego (Transformations of interests and values of the Polish society), Humianiora Foundation Publishing, Poznań 2000, cited by: K. Szafraniec (ed.), Kapitał ludzki i zasoby społeczne wsi. Ludzie–społeczność lokalna–edukacja (Human capital and social resources of rural areas. People – local community – education) , IRWiR PAN, Warsaw 2006, pp. 17-18.

- skills and knowledge acquired during professional activity (professional experience) and specialist training,
- state of health, human vital energy,
- civilisational and social competences (e.g. command of foreign languages, skills in applying new technologies).

Human capital contains several aspects and its level changes through time. Various factors influence it in diverse ways at specific stages. For example, one may assume that significant roles in the formation of human capital during early childhood and youth are played by inherited biological characteristics, cultural capital[82] or knowledge and skills obtained in the field of the education system. Regardless of the temporal dimension, e.g. the structural (social relations, social capital) and institutional elements will continue to be vital to the level of human capital. Mutual relations among individual types of capitals are also significant. Human capital may succumb to conversion into other capital: social (structural), material (e.g. financial, physical), intellectual (at the organisational level)[83] and cultural. In turn, along with the inherited characteristics, the listed types of capital affect the level of human capital.

Cultural capital is a fixed disposition of a person, manifesting in the ability to act in a specific way, which is expressed in language, gestures, used vo-

[82] Cultural capital can partly be a component of human capital, simultaneously remaining a separate entity, independent, external to man.

[83] Human capital should be distinguished from intellectual capital and social capital. Intellectual capital should be associated with the area of economic organisations, which are the domain of management research studies. This is a broader concept than human capital. Usually understood as containing capital of other types: human, social, relational and structural, and/or as a hidden resource, initially not affiliated with man, but rather organisations, particularly enterprises, cf. i.e. R. Petty, J. Guthrie, Intellectual capital literature review. Measurement, reporting and management, Journal of intellectual capital, v. 1, no. 2, MCB University Press 2000, pp. 155-176. The concept of intellectual capital appeared during the 1970's, resulting from the discovery of the significance of intangible assets of companies to the value of enterprises, cf. W. Rogowski, Kapitał intelektualny jako generator nowych czynników konkurencyjności (Intellectual capital as a generator of new competitiveness factors), in: S. Kasiewicz, W. Rogowski, M. Kicińska, Kapitał intelektualny. Spojrzenie z perspektywy interesariuszy (Intellectual capital. A view from the perspective of interested parties), Economic Publishing House, Kraków 2006, p. 64. In general, intellectual capital means knowledge, experience, technologies, relations held by organisations providing them with competitive advantage (it depicts the difference between the total financial value of an enterprise and its accounting value), cf. L. Edvinsson, S. Malone, Intellectual capital, PWN Scientific Publishing, Warsaw 2001, pp. 39-40.

cabulary, accent. Its embodied form is the habitus[84]. Cultural capital usually succumbs to conversion to economic capital and is allocated irregularly. The diverse distribution of cultural capital is based on class. The development of skills and abilities is greatly conditioned by social origin. During upbringing, the parents pass specific genetic and cultural characteristics to their children, which remain in mutual influence, translating into specific economic opportunities.

Therefore, the discussed form of capital is accumulated for a long time and has a tendency to reproduce (be passed to the next generation). This is why the children from various families hold diverse chances for success at the threshold of their education. The reason for this is not only the equipment with the transferred material resources facilitating life, but also through the formation of permanent dispositions of acting, personality attributes of non-material nature.

Human and social capital are also subject to a mutual direct impact. According to R. Putnam[85] and F. Fukuyama[86], human capital relates to mutual social relations and the trust of individuals, thanks to which they can gain more benefits in both the social and economic spheres. The level of unit human capital plays a special role in building these relations; it is based on the advantages of an individual from activity in the area of interpersonal connections[87]. Social capital may be one of the major determinants of human capital, as some of its aspects facilitate the production-related actions of individuals. The path of the educational career of a person depends on the occurrence of social capital in his/her closest environment[88]. A high level of human capital may translate into the creation of social capital.

Social capital is to be considered complementary in relation to human capital, as apart from the significance of the attributes (e.g. knowledge, skills) of individuals and the resources of human capital in the organisation, one of increasingly important determinants of development is the limitation of asymmetry in the access to information (knowledge), its exchange and joint reprocess-

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[84] Cultural capital can also take an objectified form, being cultural goods such as works of art, cf. Bourdieu P., The forms of capital, in: Woolsey-Biggart N., Readings in economic.., op. cit., pp. 282-285.

[85] R. Putnam, R. Leonardi, R. Y. Nanetti, Demokracja w działaniu: tradycje obywatelskie we współczesnych Włoszech (Democracy in action: civic traditions in contemporary Italy), Social Publishing Institute "Znak", Stefan Batory Foundation, Cracow-Warsaw 1995, p. 258.

[86] see F. Fukuyama, Zaufanie: kapitał społeczny a droga do dobrobytu (Trust: social capital and the path to welfare), PWN, Warsaw – Wrocław 1997.

[87] cf. P. Bourdieu, The forms of social capital. [in:] Handbook of theory and research for the sociology of education, J. G. Richardson (ed.), Greenwood, New York 1986, p. 93.

[88] J.S. Coleman, Social capital in the creation of human capital, The American Journal of Sociology, v. 94, The University of Chicago Press, Chicago 1988, p. 109-115.

ing[89]. Building a cooperation network for the exchange of ideas and the dissemination of work results has become the basis for increasing the benefits both for the individual and social groups (organisations). Trust, cooperation and engagement in achieving common goals are becoming more and more important factors in this activity[90]. It is also of great importance for the development of businesses and communities. Building the network of mutual relations, based on opinions, values and norms, translates into the success of the individual and the social group on a local scale. Highlighted is the importance of local governments in the creation of networks connecting society members, non-governmental organisations and representatives of economic activity, in the decentralisation of planning and the implementation of development policy[91].

For local communities, in which interpersonal relationships are based on trust, they facilitate (apart from knowledge and information exchange) deriving benefits from the mutual exchange of goods and services in the form of barter with the exclusion of formalised agreements and specified terms of payment. Such communities are regarded as very innovative and capable of adjusting to changing development conditions by cooperation, cutting costs and the risk of undertaken actions, and the opportunity to cooperate in the pursuit of problem solving. It is known as collective intelligence, i.e. the ability to learn and adapt to the changes in one's environment[92].

In analysing the theoretical contemplations on human capital and with consideration of the results of conducted research, it is possible to distinguish its significant components at the micro level – human, which translates into the macro level – region, country. These components include cultural capital, knowledge and skills acquired through the system of early childhood education and care, knowledge and skills acquired through the system of formal education,

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[89] Based on research on the human and physical capital level, researchers representing the so-called "new economic sociology" approach argue that many problems which traditionally belonged to the domain of economics, may now be analysed using tools of sociology, see J. Gardawski, L. Gilejko, J. Siewierski, R. Wowalski, Socjologia gospodarki (The sociology of economy), Difin, Warsaw 2006, p. 17.

[90] M. Woolcock, Social Capital and Economic Development: Towards a Theoretical Synthesis and Policy Framework, Theory and Society 27 (2), 1988, p. 154.

[91] M. Warner, Building social capital: the role of local government, Journal of Socio-Economics, No. 30/2001, p. 188.

[92] A. Pike, A. Rodriguez-Pose, J. Tomaney, Local and regional development, Routledge, London, New York 2009, p. 92-94 and M. Warner, Social capital construction and the role of the local state, Rural Sociology, 1999 r., No. 64 (3), p. 374.

knowledge and skills acquired through occupational education (training), and civil competences and state of health[93].

The development of human capital in children begins long before they start school education. From their first weeks of life, children dynamically learn and acquire new skills due to the exceptional potential held at this stage of life. During this time, a child forms attitudes towards society (e.g. cooperation with others, level of autonomy) and acquires skills (e.g. creativity, solving problems)[94]. It is indicated that the early education and care of children is a public good, which also provides external benefits (*externalities*) such as good health, social cohesion, the increased occupational activity of women, the growth of budgetary income, and savings in expenditures for social policy. The aforementioned services equal the developmental opportunities of the children, particularly those being raised in families exposed to financial problems and entail relatively better results of higher education levels[95]. Due to the aforementioned elements and its nature – no way to compensate for adequate human development in early childhood, significant susceptibility to the imperfect actions of the market (*market failure*) or the risk of limited accessibility and adequate quality of the offer, the area of early education and care for children in most economically-developed countries is covered by government intervention[96].

Today, we are dealing with a sudden growth in the popularity of increasingly higher levels of education. This is related to the adaptation of employees to the rising requirements of the labour market which demands a highly-qualified labour force, as well as structural changes in the economy, based on the development of the service sector. The level of education is an element often associated with human capital. This is probably related to the universal regularity, observed in all countries, that higher education translates into higher earnings than at other education levels. The question of what the optimal education system should be and what it should serve remains open. This does not change the fact that in economically-developed countries, education until entering adult life is becoming almost commonplace and the share of people with higher education is growing in these communities. At the same time, the supply of workplaces re-

[93] It should be noted that this is certainly not a complete enumeration of the factors influencing the creation and development of human capital. Official education, teaching adults, training in the workplace and medical care constitute elements distinguished by Schultz (with the exception of the additional: migration of individuals and families aimed at improving the economic situation).

[94] OECD, Starting strong II. Early childhood education and care, OECD Publishing, Paris 2006, p. 38.

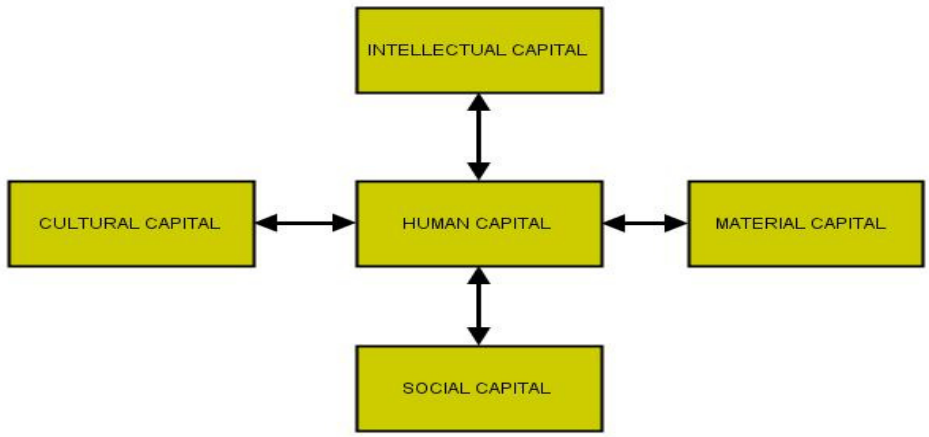
[95] Ibidem, pp. 249-255.

[96] Ibidem, p. 37.

quiring high qualifications is limited. This is the reason for undertaking work below the level of educational preparation (underemployment). This is accompanied by a drop in educational prestige and its influence on the level of earnings.

Due to the dynamic technical progress and the need to stay occupationally active for longer, it seems necessary to continuously verify and supplement the possessed knowledge and skills. This strategy not only conditions earnings at a satisfactory level, but also constitutes security from loss of employment and social marginalisation. With the popularisation of education at increasingly higher levels and wider access to educational institutions, it is currently believed that continuing education and the acquisition of experience in the workplace are becoming relatively more important factors in the formation of employee productivity, and in turn their earnings[97]. The labour market presents several systemic and cultural barriers limiting the proper level of participation in continuing education. It seems that the main problem is in the insufficient desire of some occupationally active individuals to participate in various training courses or workshops, which is caused by lack of money, convictions on the effectiveness of such activity or lack of adequate educational resources.

Figure 1.3. Human capital and selected types of capital conversion processes



Source: own elaboration.

The transformations occurring in the contemporary world are characterised by various categories of dynamic technological progress. In this context, digital technologies and electronic communication tools are considered among the most important civilisation accomplishments. However, the fact of the mu-

[97] D.W. Livingstone, The limits.., op. cit., p. 9.

tual conditioning of infrastructural and human factors is significant in this case. The development and effective application of ICT, as well as the creation of positive external effects of networking, require the appropriate preparation of its users[98]. On the other hand, the individuals equipped with specific competences should have access to this infrastructure in order to use the opportunities it offers. It is noted that the exclusion from the use of new technologies (*digital exclusion*) is a problem faced by a large part of the population. This issue is particularly significant in the context of the unfavourable location of rural inhabitants. It is noted that ICT reduces or eliminates the objective developmental limitations associated with spatial and temporal distance. Thanks to the application of new technologies, the rural inhabitants equipped with specific knowledge and skills can improve their economic position and contribute to their social and economic development at the supra-individual level.

The state of health has a substantial impact on the quality of human capital. Health is considered as a resource with a complex nature, as a consumption good and as a capital good. In the first instance, it increases human usefulness, since man draws satisfaction from being healthy. Its capital aspect involves the increase in the possibilities of undertaking activities on the market and beyond (e.g. a relatively higher number of days spent at work). Health is a good which is both produced and acquired by humans. Everyone has a certain initial health resource, which depreciates with time. Health, much like education, is a part of the individual. The expenditures made in this the field can entail future measurable benefits through the limitation of its incidence[99]. Health resources can be measured in various ways. In the discussed range, human capital is usually characterised by the consideration of the characteristics of a given population, such as mortality, incidence, number of conducted specific medical services during an examined period, or in cost depiction – expenditures for medical services for a specific population falling under the labour force, the value of the additional labour product obtained through health programmes, the current value of future earnings obtained due to health programmes, and the cost of not creating the product volume by sick people[100].

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[98] OECD, The new economy. Beyond the hype, The OECD growth project, OECD Publishing, Paris 2001, p. 55.
[99] S.J. Mushkin (), Health as an investment, Journal of Political Economy, v. 70, No. 5, pt. 2, The University of Chicago Press 1962, p. 131.
[100] Ibidem, p. 138-148.

1.5. Social capital in relation to human capital

The concept of social capital was developed as a result of reflection on the role of social conditions determining the success of human activity. This term underlines the interaction and uniformity of the economic and social aspects of the functioning of individual and social structures. This results from the need for economic theory to include non-material factors in socio-economic development. The origin of research on this phenomenon goes back to the beginning of the 20th century, whilst its burgeoning several dozen years later was possible thanks to sociologists' interest in social factors influencing the welfare of society and its members, which would explain the differences in the effects of operating in various groups having similar conditions and material resources.

The progress in the research on socio-economic relationships, including their non-economic scope, is the product of the development of institutional economics (especially the new institutional economics), which makes critical remarks on the narrowed reference to economic phenomena represented by the neo-classical approach. Within this approach the concept of the institution was defined as "legislative, administrative and customary regulations of repeated human interactions"[101]. This definition covers both the formal aspect of institutions (as legislative norms) and informal (based on the norms developed within communities), which shape the relationships between various entities in the management process. The concept of social capital focusses on informal aspects of interpersonal relationships and refers to the principles of socio-economic life based on values, trust and human interactions. Its character may be compared to the theory of sustainable agriculture, as both of these require including the social evaluation of events in the economics[102]. Whilst in the second case evaluation refers to the assessment of natural resources, the concept of social capital refers to defining the relations between trust, connection networks and cooperation on the one hand, and socio-economic development on the other. In both cases the evaluation of non-material features is difficult but necessary to ensure sustainable development, as a basis for the future functioning of society and the econ-

[101] S. Pejovich, The economics of property rights: towards a theory of comparative systems, Series: International Studies in Economics and Econometrics, Vol. 22, Kluwer Academic Publishers, Dordrecht, Boston 1990, p. 4.

[102] see J. Wilkin, Uwarunkowania rozwoju polskiego rolnictwa w kontekście europejskim i globalnym. Implikacje teoretyczne i praktyczne, Referat przygotowany na VIII Kongres Ekonomistów Polskich: „Polska w gospodarce światowej – szanse i zagrożenia rozwoju" (Conditions for the development of Polish agriculture in the European and global context. Theoretical and practical implications. Presentation for VIII Polish Economists' Congress: "Poland in global economy - opportunities and threats of development"), 29-30 November 2007, p. 16.

omy[103]. As such, sustainable agriculture is the answer to market inefficiencies concerning the level (intensity) of utilising the environment and generating public goods[104]. Social capital, on the other hand, guarantees the appropriate development of economic capital[105]. Norms, values and trust facilitate the limitation of transaction costs, bureaucracy and state administrative control, and they are among the factors shaping development policy by cooperation between citizens and policy makers[106].

The approaches to the definition of social capital, as well as the methods of its measurement, are varied, depending on the definition, analysis level and variables used in the analysis. However, one may claim that the essence of social capital, both on the national and local scales, is the use of the individual's needs to build interpersonal relationships, trust and collective activity for the common goal of achieving benefits both for the individual and for the whole structure in which the individual operates.

The key importance in the research concerning the significance of social capital in socio-economic phenomena is given to the definition of this term, as this determines both the aggregation level and the selection of the

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[103] The Report of the Global Commission on the Environment and Development of 1987 links sustainable growth with activities aiming at ensuring the satisfaction of the present world population's needs without reducing the same opportunities for future generations. It is believed that the high level of social capital in the macro (national) scope has a positive impact on the opportunities of long-term policy supporting the protection of rare resources, even at the cost of restricting current consumption, and is one of the basic elements influencing the contribution of society to activities advocating sustainable development. See Our Common Future, Report of the World Commission on Environment & Development, Oxford University Press, Oxford 1987 and T. Schuller, S. Baron, J. Field, Social Capital: A review and critique, [in:] Social Capital: Critical perspectives, T. Schuller, J. Field, S. Baron (ed.), Oxford University Press, Oxford 2000, p.1-38.

[104] J. S. Zegar, Koncepcja badań nad rolnictwem społecznie zrównoważonym (Concept of research on agriculture within sustainable society), [in:] Koncepcja badań nad rolnictwem społecznie zrównoważonym (The concept of research on sustainable agriculture), S. Zegar (ed.), Long-Term Programme Report No. 11, IAFE-NRI, Warsaw 2005, p.18. Among many factors, J. Zegar emphasises the need for building social capital, indicating that: "industrial agriculture provides benefits (survival) to a decreasing group of farming families, separating them from rural society - separating the viability of farms from the viability of the rural areas (economic and social), and restricting the opportunities of the alternative activities of the rural population, with their negative impact on the natural environment and rural landscape." Ibidem, p.17.

[105] W. Szymański, Czy globalizacja musi być irracjonalna? (Does globalisation have to be irrational?), SGH, Warsaw 2007, pp. 40-41.

[106] C. Grootaert, Th. van Bastelaer (eds), Understanding and measuring social capital. A multidisciplinary tool for practitioners, The World Bank, Washington 2002, p. 8, and: Ch. Ray, Repertoires and strategies in European (neo-) endogenous rural development, [in:] Globalising rural development. Competing paradigms and emerging realities, M.C. Behera (ed.), SAGE Publications, New Delhi, Thousand Oaks, London 2006, p. 244.

features for the analysis. Three fundamental levels of the analysis of social capital can be distinguished[107].

The first of these is the individual aspect, referring to the features and resources of a human with an individualised character, which influence the generating of own influences, connections and familiarities of a microsocial nature. Such a network is generated by family, acquaintances, and friends. Apart from people connected through friendship and family relationships, this group also consists of relationships generated through investments (in time and energy) by the individual aimed at joining an existing or creating a new formalised group and further activity within that group, for example, membership of the group of graduates from a prestigious faculty at a renowned university, membership of associations, clubs etc. The resources of individuals, which are characterised by their social capital, enable them to also create weak social bonds, generated on the basis of occasional contacts within a small community (usually inhabitants from the closest neighbourhood). The randomness and lack of a common goal in such relationships does not allow the building of strong bonds, but the recurrence of the contact, if it relates to positive interaction, influences the formation of bonds between individuals. Whilst relationships with family, friends and co-members of complex social structures are the core of interpersonal relationship infrastructures, and their expansiveness and depth condition the acquisition of benefits, it is the formation of weak connections which influences the improvement the quality of life of the individual (well-being resulting from positive relationships with the environment) and creates the foundation of a relationship which can be further developed if the need arises.

The second aspect of social capital is the group-class aspect[108], which refers to social capital within a specific group or social class. Within this approach the network of relationships (as the determinant of social capital) is specific for a given group, and the primary method for an individual to attain it is of this group. Within this view, social capital is an attribute of certain social group,

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[107] see J. Bartkowski, Kapitał społeczny i jego oddziaływanie na rozwój w ujęciu socjologicznym (Social capital and its impact on development in the sociological context), [in:] Kapitał ludzki i kapitał społeczny a rozwój regionalny (Human capital, social capital and regional development), M. Herbst (ed.), Scholar, Warsaw 2007, pp. 76-88. In the literature it is possible to find classifications of the approaches to the definition of social capital according to the levels of the individual (according to Bourdieu's definition), organisational (J. Coleman's approach) and the social (according to Putnam's research) consideration. V. L. Valentinov, A social capital perspective on institutional changes in transitional agriculture of CEE countries [in:] The role of institutions in rural policies and agricultural markets, G. van Huylenbroeck, W. Verbeke, L. Lauwers (ed.), Emerald, Bingley 2007, pp. 395-396.

[108] term by: J. Bartkowski, Kapitał społeczny.., op. cit., p. 79.

which is characterised by a specific ethno-cultural composition or a specific position. Social capital in such a case is a consequence of distinguishing and integrating people with specific individual resources of social capital, which binds together the thus-created group, deriving benefits on the basis of excluding individuals who are not its members. This may be a source of social inequalities, if the limitation of the access to its resources (as bonds within the group) is related to the position in social structure. Moreover, as F. Fukuyama[109] points out, social capital may have its negative impact, in which cooperation has positive effects for the members of the group, but negative for those excluded from it. For example, certain elements of industrial organisations may influence the assignment of key public functions by appointing their own members in order to derive benefits at the cost of other groups and individuals. It is an instance of exclusion, i.e. barring individuals from outside the group from goods and privileges. Among negative examples of social capital, A. Portes also indicates criminal relationships, nepotism and closed structures of ethnic minorities[110]. Strong bonds within a group may restrict the development or freedom of individuals requiring large benefits to other members of the group in return for participation in the access to goods and privileges. This may also include actions aiming at restricting the social aspirations of the individuals and opportunities for their promotion to a higher social class.

The third aspect of social capital is the collective aspect, covering society and the character of relationships between its members. According to this approach, social capital is of a supra-individual character and is based on the social principles of human interaction. These principles are the norms and values of social life, as well as legal relations and state policy, which facilitate cooperation, exchange and communication. The level of this capital influences development by providing patterns of cooperating within society and protection of activities based on those patterns, which supports making decisions concerning cooperation and, consequently, an increased level of trust towards other people and the state, as well as the reduction in costs resulting from the risk, and the dynamics of the process of exchanging positive patterns between various areas of social life, thus contributing to initiating the process of synergy[111].

The social capital of an individual is generated by the environment influencing individuals and their specific features and views, affecting, i.a., the

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[109] F. Fukuyama, Social Capital and Civil Society, a paper prepared for the IMF Conference on Second Generation Reforms, October 1, 1999, p. 4.
[110] see A. Portes, Social Capital: Its Origins and Applications in Modern Sociology, Annual Review of Sociology, vol. 24/1998, pp. 15-18.
[111] cf. J. Bartkowski, Kapitał społeczny.., op. cit., p. 85.

quality and expansiveness of relationships with others, and participation in formal and informal groups. J. Coleman, in the context of the concept of social capital, underlines the influence of the environment on the human in his/her early years, and consequently his/her relationships with the environment, resulting from his/her personality traits[112]. Social capital is strictly connected with the term of habitus, as a system of perception, thought patterns, norms and activities, which result from, consciously or unconsciously acquired, systems of values, social norms, views and features.

Social capital is based on the influence of networks, interpersonal relationships and acknowledgement within the group. In this area, it is conceived as individual investments in social relationship networks. This assumes a connection between the attributes of individuals, which are appropriate for human capital (such as the processes of education and skill acquisition) with the process of their activity and interactions in a social group (e.g. organisation), thanks to which they have an opportunity to exchange experiences, deepen their knowledge and utilise joint actions to achieve specific goals. Within the networks of mutual relationships, individuals also receive support in the form of acknowledgement and reliability, deriving from social experience. This way they receive a broadly-defined credit resulting either from their reliability confirmed by the authority/experience of other participants or the attributes of the whole group, which it ascribes to its members[113]. The individual nature of the analysis of social capital resources is complementary to the methodology of research on human capital resources. Attributes of the individual, characteristic for both types of capital, translate into the effectiveness of entities functioning on the market (and in a broader perspective influence on the institutional conditions of economic development). On the one hand, the knowledge and skills of an individual and the ability to process and utilise information translate into the results of the management, on the other hand, the individual's ability to create network systems contributes to disseminating this knowledge, its exchange and multiplication. The concept of human capital refers to the level of education, personality traits, acquired knowledge, civilisation skills, and state of health of an individual, whilst social capital refers to the process of using these features in social structures for the realisation of a common goal.

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[112] see J. Coleman, Foundations of Social Theory, Harvard University Press, Cambridge, 1994.
[113] P. Bourdieu The forms of social capital. [in:] Handbook of theory and research for the sociology of education, J. G. Richardson (ed.), Greenwood, New York 1986.

1.6. Human capital in rural areas and agriculture

The issue of human capital in rural areas should be examined in association with the characteristics typical of these areas and the transformations within them. Among many depictions, recognised rural attributes continue to include spatial and demographic characteristics, with emphasis on the individuality of the region and its population; social, accentuating the functioning specifics of this society, reflected in the life conditions, interpersonal relations, institutions; cultural, concerning standards, values, traditions, original non-material and material output, and economic, which stress the significance of agriculture to the local economy, labour specifics in this sector and other than urban market organisation[114]. The valorisation of the above traditional rural characteristics in the economic aspect, combined with the fact that their surrounding areas comprise the space for the allocation of the production of numerous environmental goods, result in increasingly frequent emphasis of the developmental opportunities on the aforementioned regions as areas of high inhabitation attractiveness. However, the traditional depiction examining the division into urban and rural areas through the prism of the privileged economic location of the former is dominating, and it has an objective reflection in the comparisons of the living standards of the population according to the place of residence, measured with the GDP *per capita* indicator or access to technical infrastructure and public services. This state is the result of population density, specific saturation in various markets, distance to them, as well as accessibility of information, labour and other valuable resources[115]. The unfavourable location conditions and associated economic processes oriented towards the support and effectiveness growth translate into the concentration of economic development in so-called growth poles, having a diverse impact on peripheral areas, rural areas in particular. The influence of urban centres causes not only diversity in the occupational structure of the rural population, the popularisation of the lifestyle or the shape of the inhabitation network, but also transformations in the demographic structure. The latter process will usually have a two-way nature. The migration of rural inhabitants to

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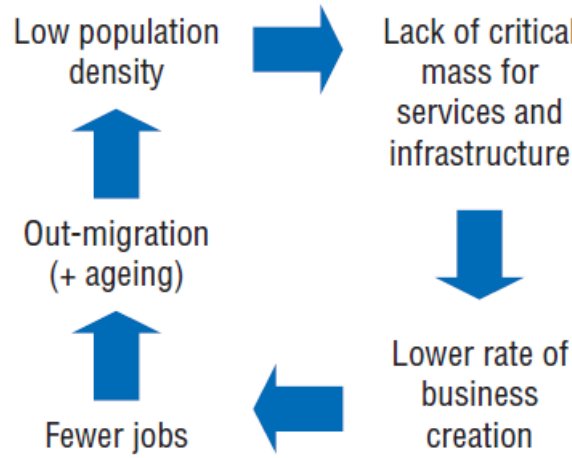
[114] A. Kaleta, Obszar wiejski i koncepcje jego rozwoju, in: Rozwój obszarów wiejskich w perspektywie integracji z UE (Rural areas and concepts for its development, in: Development of rural areas in the perspective of integration with the EU), FAPA, UMK, SGGW, Toruń 1998, cited in A. Czarnecki, The role of urbanisation in the multifunctional development of rural areas, IRWiR PAN, Warsaw 2009, p. 30.

[115] E.J. Malecki, Digital development in rural areas: potential and pitfalls, Journal of Rural Studies 19, Elsevier Science Ltd. 2003, p. 201.

urban centres may shake the population balance, displayed by the processes of aging of the population (relatively high share of people in retirement or immobile pre-retirement age) or domination of one gender, which may lead to depopulation and disappearance of rural areas (Fig. 1.4). In consequence, this means changes in many dimensions, including the depreciation of the value of human capital.

Other possibilities include both the preservation of demographic balance (no changes), as well as the formation of a situation accompanying population migrations from rural to urban areas. However, the latter case is relatively rather rare and usually involves rural areas located near cities[116].

Figure 1.4. Circle of declining rural regions



Source: OECD, The new rural paradigm: policies and governance, OECD Publishing, Paris 2006, p. 32.

Transformations in rural areas make rural communities assimilate their lifestyle and consumption with the urban ones to an increasingly greater extent, which triggers the change of expectations concerning the service and trade infrastructure in rural areas, but also those concerning public space and the socio-cultural resource. The organisation of life at the local level on the one hand forces (due to the lack of institutional solutions) and on the other, stimulates (due to the social bonds in a small area) activity directed at using existing re-

[116] M. Stanny, Typologia wiejskich obszarów peryferyjnych pod względem anatomii struktury społeczno-gospodarczej (Typology of rural peripheral areas in terms of the autonomy of the socio-economic structure), Rural areas and agriculture No. 2 (151), IRWiR PAN Publishing 2011, Warsaw, p. 60.

sources to improve the quality of life. Next to the increasing importance of human capital, it is possible to observe the same phenomenon regarding the activation of local communities in planning and implementing local development. This aims at the utilisation of individual resources of knowledge and skills to define the needs and barriers of rural development.

We may observe a departure from the traditional concept of a hierarchical structure of local government and the transition to the concept of local governance, which features the engagement of many institutions in the process of governance, the fragmentation of the local administration structure, the higher importance of horizontal entities cooperating in a given area (social organisations and representatives of the private sector as partners of local government units), and regional and international cooperation[117]. The process of governance involves individual and collective responsibility for inhabited space. The development of such understood governance will be facilitated most of all by the inflow of the educated population from urban areas, for whom the preservation of high habitation standards of rural areas, and consequently, preservation of landscape values, will be particularly important[118].

We may suppose that the rules of local governance, which introduce more participation of the communities and local organisations in the process of the creation and implementation of local government policy, will also become popular in rural areas situated on the outskirts of cities. In the second case an important part will be the multifunctionality of agriculture and the development of large villages and small towns as the centres of local socio-economic development. In the light of the growing importance of the non-agricultural function of rural areas, the expectations towards the agricultural sector will also change, apart from the economic function, and the landscape and environmental functions will grow in importance[119]. This influences the change of priorities in rural development, which on the one hand covers the growth in the competitiveness of the agricultural sector by optimising the use of production factors[120], whilst

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[117] O. Bukve, The governance field - a conceptual tool for regional studies, article for a conference: The RSA International Conference, Prague May 27-29, 2008, p. 2-3.

[118] see R. Kamiński, Aktywność społeczności wiejskich. Lokalne inicjatywy organizacji pozarządowych (The activity of rural communities. Local initiatives of non-governmental organisations), IRWiR PAN, Warsaw 2008, p. 22.

[119] A. Sikorska, B. Karwat-Woźniak, P. Chmieliński, The landscape-cultural mosaic as a factor in rural development in Poland [in:] Unicity, uniformity and universality in the identification of the landscape and cultural mosaic, "Architettura del Paesaggio", Allegato al n. 20/2009, p.7.

[120] see B. Karwat-Woźniak, Gospodarstwa wysokotowarowe w rolnictwie chłopskim (Large-scale commercial farms in peasant agriculture). Synthesis of research results 2005-2009,

on the other hand, the improvement of the standard of living in rural areas by supporting the development of non-agricultural functions of agricultural farms and actions aimed at local communities[121]. The implementation of this objective involves the diversification of economic activity of the agricultural population and contributes to the growth of income[122]. Rural areas are endowed with new, non-agricultural functions, which reflect the changing consumption patterns. Human and social capital resources will be the basis of the policy of rural area transformation in the light of the changing functions of the country and consumption patterns in society.

This results from the fact that a large part of the population in many countries inhabits rural areas and finds employment there[123]. The agricultural sector remains a traditional and still-important activity of this population from the point of view of economic activity. Institutional, location, economic and infrastructure barriers often hamper the development of human capital in rural areas. This does not change the fact that, similarly to other branches in the economy, also in agriculture the growth of production, intensity, and vertical and horizontal connections, were accompanied by the growth of the importance of this factor.

Human capital became important for the improvement of the results of operating, especially regarding the aspect of the proper management and organisation of other production factors, i.e. land and capital[124]. In the model macroeco-

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Long-Term Programme Report No. 151, IAFE-NRI, Warsaw 2009, and A. Czyżewski, Makroekonomiczne uwarunkowania rozwoju sektora rolnego (Macroeconomic conditions of the development of agricultural sector), [in:] Uniwersalia polityki rolnej w gospodarcze rynkowej (The universals of agricultural policy in the market economy). AE Publishing in Poznan, Poznan 2007.

[121] M. Leszczyńska, Zróżnicowanie dochodów ludności rolniczej i ich uwarunkowania (Differentiation of the income of rural population and its conditions), University of Rzeszów, Rzeszów 2007, p. 162-163.

[122] See W. Poczta, K. Pawlak K,. E. Kiryluk-Dryjska, P. Siemiński, Perspektywy polskich gospodarstw rolnych w Europejskim Modelu Rolnictwa (Prospects for Polish farms in the European Model of Farming), Scientific Yearly Magazines SERIA, Warsaw-Poznan-Cracow 2007, p. 289 and Czudec A., Wyposażenie w czynniki wytwórcze a konkurencyjność gospodarstw rolnych (Production factors and the competitiveness of agricultural farms), Yearly Magazines of the Agriculture and Agribusiness Economists Association, scientific journal 3, vol. X, Warsaw-Poznan-Lublin 2008, p. 103.

[123] In 2007, the areas mostly regarded as rural were inhabited by 24% of the total population from EU-27 Member Countries, and they provided 21% of the total workplaces, cf. Rural Development in the European Union. Statistical and economic information, Directorate-General for Agriculture and Rural Development, http://ec.europa.eu/agriculture/rurdev, p. 12.

[124] J. Górecki, Rola czynnika ludzkiego i kapitału społecznego w procesie rozwoju wsi i rolnictwa Polski po jej akcesji do UE (The role of the human factor and social capital in the process of the development of Polish agriculture and rural areas, after accession to the EU), Wieś i rolnictwo No. 2 (123), IRWiR PAN, Warsaw 2004, p. 187.

nomic approach, the agricultural producer (farmer), that is the manager of the agricultural farm, strives for the maximisation of his/her goal function, i.e. achieving income at a satisfactory level. The implementation of this task depends on a number of decisions in the following areas: production type and volume, allocation of resources and inputs (financial means, work time, skills), uncertainty and risk (environmental and seasonal character of agricultural production)[125]. It is often emphasised that in order to realise his/her production plans to the largest possible extent, a farmer can influence only one of the abovementioned areas, namely the allocation of resources and inputs, more precisely, in the area of work efficiency. Among the foundations of work efficiency there is the concentration of capital and the proper technical equipment of an agricultural farm[126]. It should be assumed that making optimum decisions regarding the resources and relations between production factors in an agricultural farm depends to a large extent on the human capital of the managing person[127]. Regardless of the axioms of the analytic model[128], in reality the population of farmers is not uniform in terms of knowledge and qualifications, which, considering the whole complexity of various conditions of conducting business activities, translates into undertaking diversified solutions concerning production strategies, influencing management effects.

While examining the situation of a farmer managing an agricultural farm, apart from the type and size of production, the division of inputs and resources, uncertainty and risk, the significant impact of a number of exogenous conditions must be included, i.a. regulations and the institutional factor, infrastructure and the actions of other market participants, on the effects of production. In this respect the situation in the environment of an agricultural farm becomes more and more complex, not only because of the processes of growing competition and changing business cycles on agricultural markets, but also due to the necessity to adjust to current agricultural policy, systematically increasing the requirements for producers. Those requirements mainly concern manufacturing agricultural products and their quality. Therefore, apart from the need to use the acquired knowledge and qualifications, another necessary element in agricultural activity is the access to up-to-date infor-

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[125] A. Kowalski, W. Rembisz, Model zachowań gospodarstwa rolnego w warunkach endogenicznych i egzogenicznych (A model of the behaviour of agricultural farms in endogenous and exogenous conditions), Zagadnienia Ekonomiki Rolnej (Issues in Agricultural Economics) No. 1 (294), IAFE-NRI, Warsaw 2003, p. 6.

[126] W. Rembisz, Popytowe ograniczenia wzrostu dochodów w rolnictwie (Demand limitations on the growth of income in agriculture), Zagadnienia Ekonomiki Rolnej No. 1 (302), IAFE-NRI, Warsaw 2005, p. 45.

[127] A. Kowalski, W. Rembisz, Model zachowań.., op.cit., p. 8.

[128] This refers to the Economic Rationality Hypothesis.

mation and the ability of its proper use[129]. One of the methods of acquiring new information and competences involves specialist training.

The achievement of satisfactory economic results by an agricultural producer depends not only on making actual decisions concerning production techniques, resulting from administering an existing level of resources in a given time, but also from the processes of planning the development of production activity. In agriculture, such progress may result from, i.a., the willingness to introduce changes and risk seeking[130]. New solutions in agricultural activity, having economic importance, may be of biological (improvement of plant and animal species), technical (improved devices and machines), organisational (different organisation of management and work process) and technological (new techniques and methods) nature[131]. Their introduction may be determined by a high level of human capital managing the farm. Willingness to adopt new solutions and innovations is based on the assumption that the better-educated farmer has this feature more developed than the lesser-educated one; what is more, the first one takes this factor into consideration more quickly. It so happens because higher education level or qualifications facilitate the understanding and assessment of new information concerning products and processes approaching from the environment[132]. In the process of adopting innovations and acquiring information of economic importance in agriculture, similarly to economic activity in other sectors, important aspects comprise not only education but also other components of human capital - social and civilisational competences, such as the ability to use ICT or command of foreign languages. These assets give access to broad information resources and markets, and also trigger the creation of new forms of establishing and maintaining relationships with suppliers, recipients, competitors and public bodies.

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[129] The conviction of a significant role of human capital in agriculture comes from the hypothesis stating that the process of acquiring qualifications should grow in line with general tendency to transform traditional farming into modern farming, accompanied by the creation of environment which is technically and economically dynamic and requires the acquisition of information, technologies and adjusting to changes, cf. W.E. Huffmann, Human capital: education and agriculture, in: B.L. Gardner, G.C. Rausser, Handbook of agricultural economics, Elsevier Science, Amsterdam 1999, p. 4.

[130] B. Gradziuk, Kapitał ludzki elitarnych gospodarstw rolniczych (Social capital of elite agricultural farms), Wieś i Rolnictwo (Rural Areas and Agriculture) No. 2 (139), IRWiR PAN, Warsaw 2008, p. 100.

[131] Z. Mirkowska, Innowacje i innowacyjna gospodarka a rolnictwo (Innovations, innovative economy and agriculture), Zagadnienia Ekonomiki Rolnej No. 4 (325), IAFE-NRI, Warsaw 2010, p. 129.

[132] R.R. Nelson, E.S. Phelps, op.cit, p. 70.

While analysing the connections between human capital and the effects of agricultural activity, one must take into account its family character. A number of factors play an important role in shaping the human capital of farmers in this context. One of them is cultural capital. A large part of knowledge (general and specific - useful in a specific agricultural farm) and skills regarding the management of an agricultural farm is passed on in the family. Transfers of such a kind increase the material capital of an agricultural farm[133]. As results from Huffman's analyses show, farm-specific human capital, acquired through the experience of working in a specific agricultural farm, may have relatively greater significance in stable socio-economic environments. On the other hand, investment in education translates into achieving relatively better results for the farm (e.g. higher technical efficiency) in a changing environment. It should be assumed that the value of the capital of such a kind grows in parallel with the growth of experience of working with it.

The specificity of the family form of operating in agriculture also results from the fact that the resources of the human capital of its members are allocated in four areas: acquisition of knowledge and skills, free time, agricultural production and non-agricultural work[134]. The relationship of family and agriculture is variable in time and results from information on the current value of income resulting from the allocation of a human capital unit in agricultural production or paid employment. Increased inputs of human capital in non-agricultural work occurs in the places where skills are better rewarded in the non-agricultural sectors, and the technology in the so-called first sector is developing slowly. If the income level in a service or industry sector does not depend on qualifications, and when new technologies (requiring new skills) are introduced into agriculture, the input of family human capital in agricultural production will grow, which will prevent the departure of educated people from farms[135]. Moreover, for a farming family it is relatively more profitable to increase the investment in human capital at an early stage in its members' development, including health services, influencing their lifespan.

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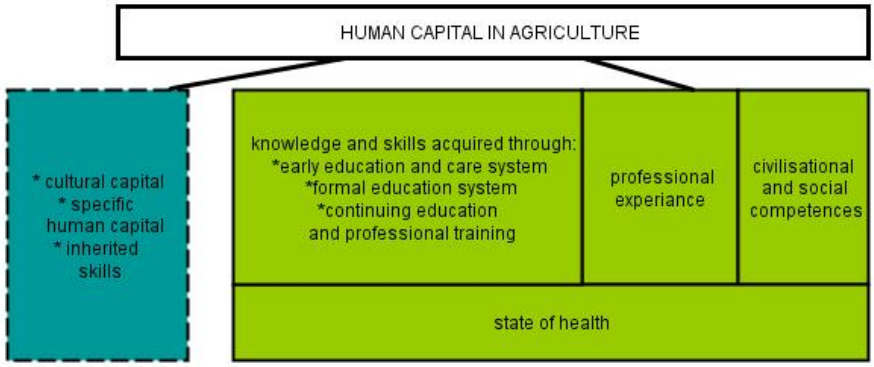
[133] D.N. Laband, B.F. Lentz, Occupational Inheritance in Agriculture, American Journal of Agricultural Economics, vol. 65, No. 2, AAEA 1983, p. 312.
[134] W.E. Huffmann, Human capital: education and agriculture, in: Gardner B.L., Rausser G.C., Handbook of agricultural economics, Elsevier Science, Amsterdam 1999, p. 4.
[135] W.E. Phelps, op.cit, p. 5-11.

Figure 1.5. Human capital in agriculture



Source: own elaboration.

The role of human capital is thus particularly important in several strategic areas of the decisions concerning the family agricultural farm: selection of workplace - agriculture or non-agricultural sectors, adopting new technologies and acquiring information, and introducing agricultural production. The research shows that the level of qualification (years of studies and knowledge quality) advocates professional activity in non-agricultural sectors[136], which results from general regularity with relatively higher competitiveness in those branches of the economy connected with services and industry. Introducing new technologies and acquiring knowledge of high importance for an agricultural farm involves considerable costs (financial costs, time) and a high level of uncertainty. In such a situation, education is treated as the factor facilitating making the appropriate choice regarding both proper technology and the selection of information channels. The above regularity is documented by a number of empirical researches. Additional years of study usually translate into a relatively higher willingness to adopt new technical and technological solutions in agricultural farms, regardless of the stage of economic development of their country[137]. Human capital should affect the volume of agricultural production and its profitability[138].

[136] W.E. Huffmann, Human capital.., op.cit., p. 18.
[137] W.E. Huffmann, Human capital.., op.cit., p. 23.
[138] Empirical verifications of this hypothesis, both on the macro and micro level, do not provide straight answers. Increasing knowledge allows the acquisition of new skills and specialisation of work, which translates into productivity growth. However, it is technical change, not education level, which has the fundamental impact on the production, cf. W.E. Huffmann, op.cit., p. 28.

1.7. The place of the Polish society considering the quality of human capital in comparison to the residents of selected European countries

As previously mentioned, one of the ways to measure human capital is the application of taxonomic methods, which are popular in the analysis of socio-economic phenomena. As in the cases of parametrisation of other phenomena, difficulties and controversies are presented by the selection of variables comprising a synthetic measure[139]. Irrespective of these problems, the following presents one of the suggestions for defining an assessment of the location of the Polish society in the field of the EU human capital level. The diagnostic variables were selected on the basis of reference literature, combined with the presented human capital model. The following variables representing specific factors influencing the human capital level of the communities in individual countries were selected (Tab. 1.1):

- x_1 – average number of points for a country from the PISA test concerning reading ability and mathematics[140]. This variable represents the cultural capital and other features transferred within families (inherited abilities). The results allowed the conclusion that such skills are obtained by the children mainly in families and reflect the cultural capital level of the society (stimulant)[141].
- x_2 – percentage of four-year-olds covered by institutional care. This indicator presents the level of early education and care for children in a given society (stimulant).
- x_3 – percentage of the population with an education level lower than secondary (destimulant), reflecting the level of formal education of a society in a given country.

[139] W. Florczak, Miary kapitału ludzkiego w badaniach ekonomicznych i społecznych (Measures of human capital in economic and social research), Statistical News No. 12 (547), GUS and PTS, Warsaw 2006, p. 62.

[140] PISA (Programme for International Student Assessment) is a standardised evaluation of knowledge and skills of fifteen-year-old students, acquired by them under the public education system. This evaluation has been conducted in cycles in OECD countries since 2000. The main examined areas are the skills necessary to function in society, which cover reading, mathematical, biological and physical knowledge, cf. http;//pisa.oecd.org.

[141] The research indicates the diverse impact of the factors on the level of the defined skills of the children. The mathematical competences of the students were influenced at a relatively higher level by the school. In turn, humanist skills are relatively more formed in the environment of the immediate family, cf. Popham.

- x_4 – percentage of adults aged 25-64 participating in continuing education (stimulant), presents the tendency of the society to improve its skills and expand its knowledge.
- x_5 – percentage of people aged 16-74 with a high level of basic computer command (stimulant), representing the level of civilsational competences of a given society[142].
- x_6 – expected number of years in good health (stimulant), presenting the state of health level of the population[143].
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The measurement of the human capital level of the communities of selected countries applied Hellwig's taxonomic measure of development (TMR), serving to linearly rank the objects on the basis of the synthetic measure. The first step was to standardise selected variables according to the following formula:

$z_{ij} = \frac{x_{ij} - \bar{x}}{S_i}$; where: x_{ij} – j property i object; S_i – standard population deviation

The next step was to create a model of development according to the following rule:

$z_{0j} = \max_i(z_{ji})$ for stimulants;

$z_{0j} = \min_i(z_{ji})$ for destimulants.

The next step was the calculation of the distance of object i from the model on the basis of the following formula:

[142] This indicator is created on the basis of the answers of respondents evaluating the ability to perform basic tasks on a computer. Such tasks included: copying or moving a file or folder, deleting or copying information in a text document, the use of basic arithmetic formulas (addition, subtraction, division, multiplication) on a calculation sheet, joining files, installing new devices or new software in the computer, and writing a computer program with the use of a specialist language. The examined people able to perform two of the six tasks were considered as having low skills in using the computer. The execution of three or four tasks meant an average level, while five or six was a high level of working on a computer, cf. http://epp.eurostat.ec.europa.eu.

[143] This indicator concerns females.

$$d_{oi} = \sqrt{\sum_{j=1}^{m} \left(z_{ij} - z_{oj}\right)^2}$$

The synthetic indicator of human capital is the taxonomic measure of development (TMR) calculated according to the following model:

$$TMR_i = 1 - \frac{d_{oi}}{d_o},\ i = 1,2,...,n, \quad \text{and } TMR_i \in [0;1] \text{ for } i = 1,2,...,n,$$

where: $d_0 = \overline{d}_0 - 2S_0$, while $\overline{d_0} = \frac{1}{n}\sum_{i=1}^{n} d_{0i}$, $S_0 = \frac{1}{n}\sum_{i=1}^{n}\sqrt{(d_{0i} - \overline{d_i})^2}$

Table 1.1. Diagnostic variables of the level of human capital in selected European countries

Country	average number of points in the PISA test – reading and mathematics x_1	percentage of four-year-olds covered by institutional care (%) x_2	percentage of people aged 25-64 with low level of education (%) x_3	percentage of people aged 25-64 participating in continuing education (%) x_4	percentage of people aged 16-74 with a high level of basic computer command (%) x_5	expected number of years in good health x_6
Belgium	1021,0	99,3	29,4	6,8	18,0	63,5
Bulgaria	857,0	78,5	22,1	1,4	7,0	65,6
Czech Republic	971,0	90,0	8,6	6,8	19,0	62,5
Denmark	998,0	91,9	23,7	31,6	31,0	60,4
Germany	1010,0	96,0	14,5	7,8	28,0	57,7
Estonia	1013,0	95,7	11,1	10,5	28,0	59,0
Ireland	983,0	73,4	28,5	6,3	22,0	65,2
Greece	949,0	70,2	38,8	3,3	13,0	60,9
Spain	964,0	99,3	48,5	10,4	28,0	61,9
France	993,0	100,0	29,7	5,7	30,0	63,2
Italy	969,0	98,2	45,7	6,0	23,0	61,2
Latvia	966,0	89,6	13,2	5,3	17,0	55,8
Lithuania	945,0	79,6	8,7	4,5	27,0	60,9
Luxembourg	961,0	94,6	22,7	13,4	42,0	65,7
Hungary	984,0	94,8	19,4	2,7	27,0	58,0
Netherlands	1034,0	99,5	26,6	17,0	40,0	59,8
Austria	966,0	91,3	18,1	13,8	29,0	60,6
Poland	995,0	70,9	12,0	4,7	14,0	62,1
Portugal	976,0	88,2	70,1	6,5	27,0	55,9
Romania	851,0	82,3	25,3	1,5	9,0	61,4
Slovenia	984,0	91,3	16,7	14,6	28,0	61,5
Slovakia	974,0	77,9	9,1	2,8	21,0	52,3
Finland	1077,0	71,9	18,0	22,1	33,0	58,4
Sweden	991,0	94,7	19,3	22,2	21,0	69,5
Great Britain	986,0	97,3	25,4	20,1	29,0	66,3

Source: own elaboration on the basis of Eurostat anf OECD data.

The conducted analyses indicate that in 2009 the societies with the highest level of human capital development included Great Britain, Sweden and Denmark. The synthetic indicator of human capital for these countries was 0.68, 0.65 respectively[144]. Concerning Great Britain, the high position of its residents results from their above-average level of education. The British are among those societies which on average educate themselves for the longest time and hold relatively one of the highest shares of populations with higher education[145]. The high value of human capital indicator of British citizens was also related to the relatively frequent participation in occupational courses and training. In 2009, 20% of people aged 25-64 underwent continuing education. As shown in the research, the latter type of activity is usually a characteristic of well-educated societies. In this case, the high level of human capital was also influenced by the almost total coverage of four-year-olds with institutional care. In Great Britain, children between the ages of three and five (until the initiation of formal education) are covered by a free and public part-time system of pre-school care and education[146]. Furthermore, compared to other European societies, the British had a high percentage of people with a high level of basic computer command (29%). The high level of human capital in this country also resulted from the state of health. The average expected length of life in good health for British females was over 66 years, e.g. 6 years more than in the case of Danish females.

At the opposite end of the human capital level was Romania. In this country the value of the human capital indicator was 0.12 and resulted mainly from low cultural capital (the average number of points from the reading test among sixth-graders was 851, i.e. 144 less than in the case of Polish counterparts), low civil competences (only 9% of Romanian residents aged 16-74 possessed a high level of basic computer command) and very low interest in participating in schooling and supplementary education.

The value of the synthetic indicator of human capital *TMR* (0.32) placed the Polish society in 20th position among 25 European countries. This relatively

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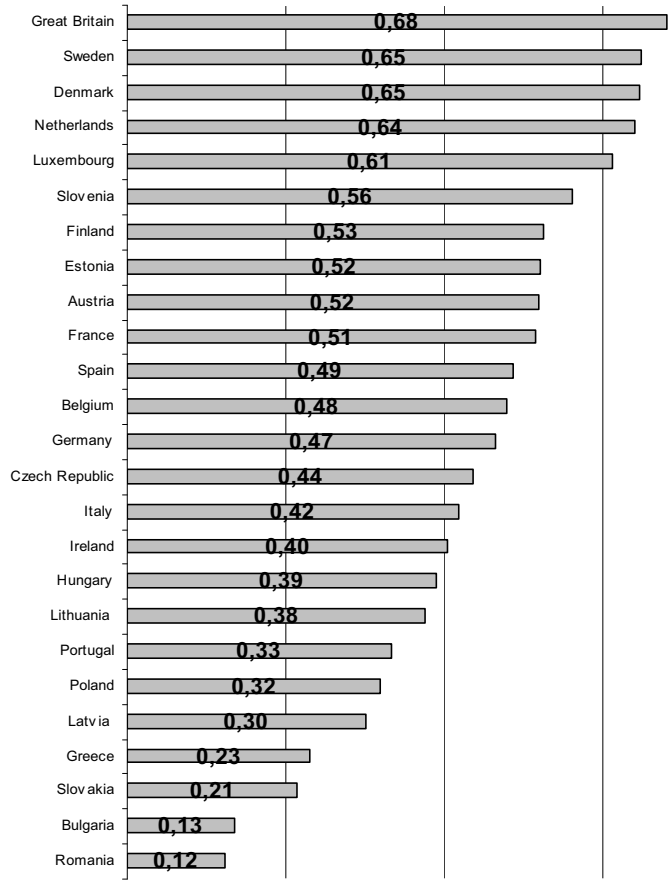
[144] These results are similar to the results of other research on the human capital of the residents of European countries. The British, Swedes and Danes found themselves among the leaders of European societies with the highest level of human capital. The lowest places in this classification were taken in turn by Romanians, Bulgarians and Slovakians, cf. I. Pawlas, Kapitał ludzki w krajach europejskich w świetle badań taksonomicznych, in: D. Kopycińska (ed.), Kapitał ludzki jako czynnik przewagi konkurencyjnej (Human capital as a factor of competitive advantage), Faculty of Microeconomics of the Szczecin University Publishing, Szczecin 2009, pp. 26-27.

[145] H. Domański, Społeczeństwa europejskie. Stratyfikacja i systemy wartości (European societies. Stratification and value systems), Scholar Scientific Publishing, Warsaw 2009, p. 34.

[146] OECD, The new rural paradigm.., op. cit., p. 81.

low position of Polish inhabitants in this regard results from a number of reasons. Firstly, within the analysed year, the percentage of four-year-olds frequenting the institutions of early education and care amounted to less than 71%. It had its foundation, i.a., in a specific form of regulations in the education and child-care system, in the very low accessibility to public and private units offering such services (preschools, nurseries) and the high tendency among parents to leave children under the care of their family members[147].

Figure 1.6. Ranking of selected European countries according to human capital TMR



Source: own calculations on the basis of Eurostat and OECD data.

[147] Społeczeństwo w drodze do wiedzy. Raport o stanie edukacji 2010, praca zbiorowa (Society on a path to knowledge. Report on education status 2010, collective study), Educational Research Institute, Warsaw 2011, p. 39.

Secondly, in Poland, continuing education is popular only to a small extent. According to the data of Eurostat, this form of seeking knowledge in 2009 was chosen only by 5% of those surveyed. It is emphasised that the process of improving qualifications in Poland has a small range and depends on the level of education and place of residence. Such activity is generally characteristic of people with a relatively better educational background and from relatively larger localities[148]. Thirdly, compared to the inhabitants of most selected countries, Polish inhabitants had lower basic computer skills. High qualifications in this area were characteristic of 14% of inhabitants of Poland. In this context, the average rate for all analysed communities amounted to over 24%.

Irrespective of the relatively low general TMR value of the human capital of the Polish population, it is also important to consider the elements which bring it to a higher position among the analysed countries. The Eurostat data indicates that Poles are relatively well-educated. The group of persons with low educational achievements in relation to the total number of persons aged 25-64 amounted to nearly 12%, with the average at 24%. In 2003 the described rate for Poland oscillated around the level of 18%. The general decrease in the number of people with a low formal educational background stems from the educational promotion of Poles, resulting mainly from the growth in interest in higher education among women and urban inhabitants, in line with demographic changes, with the representatives of the demographic bulge reaching education age[149]. Among the analysed societies Polish sixth graders achieved relatively good results in the tests examining literacy and mathematical knowledge, which may indicate the relatively strong influence of capital passed on families (cultural, heritage), but also the relatively high standard of education in primary schools. The indicator of the number of expected number of years of living in good health in Poland was at a level close to the average (62, compared to 61).

From the beginning of the 1990's until the end of the first decade of the 21st century, a systematic improvement in the state of health of adult Poles was

[148] I. Grabowska, I.E. Kotowska, Edukacja (Education), in: J. Czapiński, T. Panek (ed.) Social Diagnosis 2009. Warunki i jakość życia Polaków (The conditions and quality of living of Poles), Social Monitoring Council, University of Finance and Management, Warsaw 2009, pp. 90-93.
[149] Społeczeństwo w drodze.., op.cit., p. 19.

documented in continuous research[150]. At the same time, the percentage of negative results concerning the satisfaction of health needs is steadily decreasing[151].

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Since Poland's accession to the European Union a rapid urbanisation process has been observed in rural areas, which are developing their functions to become living places for people who work in cities. This process is particularly strong in villages located in the vicinity of agglomerations, the majority of which are losing their rural character to become "dormitory towns". This happens because transport infrastructure development and an improvement in the living conditions of the rural population, evidenced by the common access to transport resources, are effecting a geographic increase in the availability of supralocal labour markets. This contributes to lower migration rates from rural areas to cities, particularly taking into account the increasing subsistence costs in large agglomerations.

On the one hand, the reduction in the civilisational gap and the modernisation and growth of the average size of farms, as well as the advancing deagrarianisation of rural areas, are contributing to gradually reducing the differences in the standard of living between residents of rural areas and the cities, though, on the other hand, the average rural household achieves 70% of the income of the average urban household and about 50% of the income of a household located in a city of more than 500 thousand residents. The Polish countryside is becoming more and more diversified in terms of the population's sources of subsistence, the structure of farm size, the proliferation of demographic processes and the scale of internal and external migration.

The ability to use the unique local resources, ideas for developing non-agricultural economic activity, and an innovative approach to growth, are becoming significant factors for endogenous development.

In agriculture, the quality of human capital resources is particularly important in several fields of strategic decisions regarding the family agricultural holding: the allocation of labour resources between agricultural and non-

[150] B. Wojtyniak, P. Goryński, Sytuacja zdrowotna ludności Polski (Health conditions of Polish population), National Institute of Public Health – National Institute of Hygiene, Warsaw 2008, p. 31.
[151] J. Czapiński, Zdrowie – psychosomatic symptoms, in: Czapiński J., Panek T. (ed.), op.cit., pp. 186-7.

agricultural sectors, the adaptation of new technologies, and the obtaining of information for the purposes of developing current agricultural production.

Introducing new technologies and obtaining knowledge of significance to the agricultural holding comes with considerable costs and a high level of uncertainty. The high standard of education and farmers' participation in lifelong learning programmes are conducive to the adoption of new technological solutions on farms. Access to information is an important factor that determines the capabilities of running activities fostering effectiveness in managing agricultural facilities. Both the demographic features of farm managers and their civilisational capabilities will to a large extent determine the rate of positive changes in the agricultural sector.

In the development of rural areas a particular significance is assumed by natural and landscape assets, which, along with infrastructure development, condition the quality of the countryside as a place for living and working. At the same time, innovativeness in the activities towards taking advantage of the unique resources of rural areas facilitate the creation of new jobs, tourism development, and local products promotion.

Rural areas in Poland constitute a demographic reservoir of human capital for the economy, based on which sustainable development may be built in the long term[152]. In this context it may be assumed that improving the quality of human capital in rural areas is one of the key elements of state policy to lay the foundations for the long-term development of both rural areas and cities.

Membership of the European Union has opened up to Poland the opportunity of taking advantage of the greater support of human and social resources in rural areas, based on programmes implemented within the Common Agricultural Policy, but also within the framework of Cohesion Policy. As shown by an analysis of the quality of human capital in respective EU Member States, Poland, despite increasing expenditure in this field after 2004, remains in the group of countries with a relatively low level of this capital, which suggests the need to continue activities towards its improvement after 2013.

The existing social inequalities create barriers to human development, as they contribute to a depreciation in an individual's skills. That is why the Europe 2020 document, which is the strategy for the development of EU Member States

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[152] rural areas constitute 93% of Poland's land space and are inhabited by nearly 15 million people, which amounts to almost 40% of the country's population. A Sikorska, *Przeobrażenia w strukturze społeczno-ekonomicznej wsi a proces włączania się Polski do Wspólnej Polityki Rolnej (Changes in the socio-economic structure of rural areas and the process of Poland's inclusion in the Common Agricultural Policy)* IAFE-NRI, Warsaw 2007.

for 2014-2020, among the 6 main priorities, besides investments in human capital, lists assistance in knowledge transfer and innovation in agriculture, forestry, and rural areas. The quality of human capital constitutes one of the main determinants of innovative actions, not only in agriculture, but also in the rural economy.

In order to succeed, the entire development strategy for rural areas must be accompanied by an integrated impact in both the agricultural and non-agricultural functions of rural areas, i.e. support for intangible growth factors, such as human and social capital, the labour market, infrastructure, and entrepreneurship. This requires complementary investment activities in the regions oriented towards the modernisation and extension of the technical and social infrastructure of the countryside, support for the formation and development of non-agricultural small and medium-sized enterprises, the retraining of the population associated with agriculture, and an increase in the level and quality of education. Providing regions with common bases for development, even if it does not contribute to increased competitiveness in the short term, may form the basis of the future development of the European Union. In the context of developing rural areas, the CAP faces the challenge of giving support to sustainable development, which combines better competitiveness of agriculture with the protection of natural and landscape resources, while utilising non-agricultural socio-economic potential. Increasing the competitiveness of agriculture and rural areas also requires improving territorial cohesion in the regions, so that the rural population can have free access to labour markets, with reduced labour-related migration.

It is unquestionable that, irrespective of the controversies occurring in the opinions on the method of defining and studying social factors in economic theory, the quality of the human factor is currently gaining ground as a factor commonly considered important for driving economic development. This is caused not only by the shrinking production resources, but also by an empirically-recorded development path followed by countries with the relatively highest level of prosperity.

Agnieszka Wrzochalska

Chapter II.
Selected determinants of human capital in rural areas in Poland

2.1. The level of education of the rural population

2.1.1. The rural population

According to GUS data, in 2010 approximately 39.0% of the Polish population inhabited rural areas, i.e. 14.9 million people. In relation to the year 2000, the number of the population inhabiting these areas grew by almost 338 thousand (i.e. by approximately 2.3%). During the same period, the total number of the Polish population dropped by 0.2%, i.e. by approximately 69 thousand. Following Poland's accession to the EU, i.e. since 2004, the number of the rural population also grew by approximately 198 thousand, with a simultaneous drop in the total number of the country's residents by almost 26 thousand people. Despite the growth in the absolute number of the rural population during the years 2004-2010, its proportion to the total population rose very slightly. It continues to comprise slightly over one-third of the country's total population.

According to GUS data, in 2010, much like in 2004, there were 101 females per 100 males. Thus, the rural areas had a gender balance, in contrast to urban areas, with 111 females per 100 males.

The number of working age rural population in 2010 was 9.4 million, which comprised approximately 38% of the Polish population in this age group. The proportion of people aged 60/65 and over to the rural population amounted to almost 15.7%, which was not significantly different from the percentage observed in the urban population (almost 17.3%) and comprised a similar percentage as that recorded in rural areas in the years 2000 (15.6%), and 2004 (15.5%).

The number of post-working age people per 100 working age people in 2009 was 26 people in both urban and rural areas (Tab. 2.1), while the number of pre-working age people per 100 working age people was significantly higher in rural areas. These differences were also noticeable in previous years.

Table 2.1. The number (proportion) of pre-working and post-working age population per 100 working age people in rural and urban areas during the years 2000-2009

Specification	Number of pre-working age people per 100 working age people		Number of post-working age people per 100 working age people	
	Urban	Rural	Urban	Rural
2000	35	49	23	26
2005	28	39	23	25
2009	26	34	26	26

Source: Own study on the basis of: Demographic Yearbook, GUS 2010.

In 2010, rural areas were inhabited by 42% of the total children aged 3-6 and 46% of the total Polish children and young people aged 7-19. The percentage of the children and young people in the rural population was higher than the analogical indicator in urban areas in 2010 and previous years (Tab. 2.2).

Table 2.2. Percentage of children and young people in the total rural and urban population during the years 2000-2010 (according to specified age groups)

Years	Age groups				
	0-2 years	**3-6 years**	**7-12 years**	**13-15 years**	**16-19 years**
Urban					
2000	2.6	3.8	7.1	4.4	7.0
		22.3			
2005	2.6	3.5	6.1	3.8	6.0
		19.4			
2010	3.1	3.6	5.2	3.0	4.8
		16.6			
Rural					
2000	3.4	5.1	9.4	5.0	7.0
		26.5			
2005	3.1	4.5	8.3	4.9	6.7
		24.4			
2010	3.4	4.1	6.8	4.1	6.1
		21.1			

Source: Own study on the basis of Demographic Yearbooks, GUS 2005-2010, Concise Statistical Yearbook, GUS 2011.

The above facts indicate that rural areas can be considered as beneficial in their ability to utilise the human factor in the forming of development processes. As a result, it is particularly important to provide the rural population with the opportunities for investing in their widely-understood educational development. Regardless of the type of necessary abilities, the foundation of education is schooling.

2.1.2. Education centres

According to GUS data, in 2010 there were 9.4 thousand elementary schools in rural areas (Tab. 2.3), the number of which, much like in previous years, significantly exceeded the number of schools in urban areas. However, these were mainly school divisions. There was a much lower number of middle schools than in urban areas (Tab. 2.4)

Table 2.3. The number of elementary schools in rural and urban areas during the years 2000-2010

Specification	2000/2001		2005/2006		2009/2010	
	urban	rural	urban	rural	urban	rural
Number of schools in thousands	**5.4**	**11.4**	**4.5**	**10.1**	**4.6**	**9.4**
in absolute numbers						
Divisional	28	1189	15	731	14	463
Sports	49	-	45	1	60	2
Artistic	37	-	41	-	45	1
Special	631	149	634	138	635	142

Source: The Statistical Yearbook of Poland, GUS 2010.

Table 2.4. The number of middle schools in rural and urban areas during the years 2000-2010

Specification	2000/2001		2005/2006		2009/2010	
	urban	rural	urban	rural	urban	rural
Number of middle schools	3423	2872	3637	3394	3747	3497
in absolute numbers						
Sports	47	1	82	4	87	3
Special	614	139	654	152	659	162

Source: The Statistical Yearbook of Poland, GUS 2010.

In these areas, profiled middle and elementary schools for particularly talented (e.g. in sports) children are rare. There are more special schools oriented towards children with developmental impairments.

In total, during the 2009/2012 school year, the rural elementary schools were attended by 916 thousand children and the rural middle schools were attended by 468 thousand children (Tab. 2.5 and Tab. 2.6).

Table 2.5. The number of students in elementary schools in urban and rural areas during the years 2000-2010

Specification	2000/2001		2005/2006		2009/2010	
	urban	rural	urban	rural	urban	rural
Students in thousands	1 928	1 292	1 524	1 078	1 319	916
Number of students per:						
1 school	394	115	386	108	331	99
1 school room	25	14	22	13	16	10
1 teacher	16	13	16	12	15	11
1 division	24	18	23	17	22	15

Source: The Statistical Yearbook of Poland, GUS 2010.

Table 2.6. The number of students in middle schools in urban and rural areas during the years 2000-2010

Specification	2000/2001		2005/2006		2009/2010	
	urban	rural	urban	rural	urban	rural
Students in thousands	819	371	1040	557	854	468
Number of students per:						
1 school	282	134	338	170	268	139
1 school room	24	24	23	22	17	16
1 teacher	17	19	15	14	13	12
1 division	25	23	25	23	24	21

Source: The Statistical Yearbook of Poland, GUS 2010.

The dispersion of rural areas entails the need to create a higher number of schools than in urban areas. This translates to a smaller number of children per both one school and one teacher or division. On one hand, in some rural areas there are difficulties in maintaining the centres, but on the other, they ensure a better relation between the teacher and the student. This makes it possible to provide the children with better care than in urban areas, and with particular involvement of the teachers, it is possible to compensate for the shortage of artistic or sports schools.

The association of rural areas with the farming profession performed by a high percentage of the population forces the need of vocational preparation and profiling of education in the field of agronomical sciences. In total, in the years 2007/2008 there was almost 2 thousand agricultural schools of various types in Poland, which were attended by almost 100 thousand students (Tab. 2.7 and Tab. 2.8).

Table 2.7. Agricultural schools in Poland during the years 2000-2008

Specification	1999/2000	2004/2005	2007/2008
Total number of schools	1838	942	1982
including			
Basic vocational schools	438	134	976
Post-middle vocational schools	*	*	816
Technical and vocational high schools	1343	752	*
Post-secondary schools	57	56	190

Source: Agricultural and Rural Area Statistical Yearbooks, GUS 2001, 2005, 2007, 2008.

Table 2.8. Students in agricultural schools in Poland during the years 2000-2008

Specification	1999/2000	2004/2005	2006/2007	2007/2008
Total in thousands	186.8	88.7	89.2	99.9
in percentages (total number of students = 100)				
Basic vocational schools	20.2	9.7	13.0	31.4
Post-middle vocational schools	*	*	79.0	59.8
Technical and vocational high schools	78.2	85.6	*	*
Post-secondary schools	1.6	4.8	8.0	8.8
Percentage of females in total graduates	**47.6**	**50.8**	**42.1**	**31.8**

Source: Agricultural and Rural Area Statistical Yearbooks, GUS 2001, 2005, 2007, 2008.

The analysed period (the years 1999-2008) points mainly to the reducing total number of students in such schools (particularly in 2004/2005 in relation to 1999/2000) and the lower number of females among the graduates of such schools.

2.1.3. Spatial access to educational centres in rural areas

The questionnaire research conducted in IERiGŻ-PIB shows that the surveyed rural area hosts almost half of elementary schools and 16.2% middle schools, whereas 16.6% of elementary schools and almost 55% of middle schools were located within a distance exceeding 5 km (Table 2.9). The secondary schools had inferior distance indicators (Table 2.10).

However, it should be noted that most educational centres are directly supervised by local authorities, including primarily the regional local government and district local government. Therefore, the allocation of these centres depends not only on the spatial and demographic structure, but also the financial condition of the regional local government, which directly influences the formation of the educational policy in a given area. Thus, the level of financing for schools

and other educational centres depends mainly on the budget structure of the said local governments, which means that the lower the proportion of own income of the communes in the total income, the lower the possibilities of the free disposal of means for education. Nevertheless, the implemented education system reform translates into the organisation of the transport of rural children (particularly the youngest ones) to schools. It is not uncommon to see the rural child's way to school as shorter, easier and faster than the way of a child in a large urban agglomeration. Nevertheless, the difficulties in this area concern mainly the rural parents and children in the higher age groups, when ensuring education at a high or higher level requires individual travel of significant distances or the ability to reside near a school or higher academy. An important issue is also the increase of engagement and responsibility of parents in the education and schooling of children.

Table 2.9. Indicator of distance in rural areas – spatial access to elementary and middle schools during the years 2000-2005.

Years	Within village	1-2 km	3-4 km	5 km and more
Incomplete elementary school (grades 1-3)				
2000	48.8	9.3	23.3	16.3
2005	50.1	9.5	23.8	16.6
Elementary school (grades 1-6)				
2000	49.4	7.4	27.2	16.0
2005	44.0	12.1	25.3	18.6
Middle school				
2000	14.7	8.0	30.6	46.7
2005	16.2	10.6	18.6	54.6

Source: IERiGŻ-PIB questionnaire 2000, 2005.

Not all parents are also aware that active engagement in the education and schooling process in relation to their own child bears a fundamental influence on its later behaviour as an adult person, as for example in the first 2-3 years of life they practically are the only ones in contact with the child. This is exactly why it is in their competences and emotional involvement that the greatest reserves for an increase in the quality of early education are concealed. The results of the American research prove that the differences in the level of parental skills explain from 25% to as much as 50% of the differences in so-called school readiness[153].

[153] http://www.futureofchildren.org/usr_139_markman_&_brooks-gunn.pdf.

Table 2.10. Indicator of distance in rural areas – spatial access to secondary schools during the years 2000-2005

Years	Up to 5 km	5-10 km	10-15 km	15 km and more
General school				
2000	13.3	28.0	28.0	30.7
2005	17.3	30.6	24.0	28.1
Non-agricultural vocational secondary school				
2000	9.6	24.6	32.9	32.9
2005	8.6	25.7	31.4	34.3
Agricultural vocational secondary school				
2000	10.2	33.3	17.4	39.1
2005	6.8	27.4	13.7	52.1
Basic agricultural vocational school				
2000	10.3	33.8	19.1	35.3
2005	8.1	25.7	18.9	47.3
Basic non-agricultural vocational school				
2000	9.5	27.0	32.4	31.1
2005	9.8	24.0	21.1	45.1

Source: IERiGŻ-PIB questionnaire 2000, 2005.

Parents or guardians are very limited in their possibility to develop their own educational skills or actively participate in education and development classes together with their children. They do not have any, or have very limited, influence on the management and educational programmes implemented in the schooling and education institutions attended by their children. Furthermore, according to the research of PISA, in Poland more often than in other countries, the pupil's choice concerning the mode of education is not predestined by skills, but the socio-economic status of the parents. This strong influence of the social origin on educational choices simultaneously favours the deepening of social differences[154].

Although as a result of various processes, and introduced reforms, schools in other countries have taken over most of the responsibility for the education of children, the signals coming from the media show that such a solution is characterised by a number of imperfections and does not contribute to the achievement of the anticipated results. In addition the parents often reluctantly engage in the process of education and are not prepared to participate in it.

[154] Cf. Polska 2030. Wyzwania rozwojowe. (Poland 2030. Developmental challenges) M. Boni (ed.), The Chancellery of the Prime Minister, Board of Strategic Advisors to the Prime Minister, Warsaw, July 2009.

The reference literature shows that children and young people achieve the best results when in the local community there coexist the sense of responsibility of parents for the education and good conditions for schooling. In a situation where there is a lack of mutual interest in educational success, the good patterns and reliable knowledge instilled in school will be eroded by the negative features of the family environment. Analogically, good patterns brought from the family home might be subjected to erosion in a badly-organised school, unprepared for pedagogical and educational roles[155].

2.1.4. Education level

For years, there have been significant disproportions in the education of the population between rural and urban areas, although educational aspirations are rising in rural areas, much like in urban areas. As in previous years, in 2009, rural areas recorded an almost twice as low a percentage of people with minimum secondary education and over three times as low a percentage of people with higher education in comparison to urban areas (Tab. 2.11).

Table 2.11. The education level of the population (aged 13 years and upwards) during the years 2002-2009 according to the place of residence

Years	Higher	Secondary and post-secondary	Basic vocational	Middle	Elementary
	In percentages				
Urban					
2002	13.7	38.5	21.1	x	22.2
2004	17.5	38.0	21.3	4.4	16.8
2007	22.1	38.3	20.4	4.6	14.6
2009	24.0	38.4	20.0	4.5	13.1
Rural					
2002	4.3	22.4	29.2	x	38.3
2004	5.4	24.5	29.4	5.8	31.9
2007	7.0	25.1	28.5	6.3	28.2
2009	8.1	26.0	29.0	6.5	26.5

Source: Own study on the basis of Demographic Yearbooks, GUS 2005-2010.

[155] P. Śleszyński, Ekonomiczne uwarunkowania wyników sprawdzianu szóstoklasistów i egzaminu gimnazjalnego przeprowadzonych w latach 2002-2004 (Economic conditioning of the results of sixth-graders' tests and lower-secondary school final exit exams in the years 2002--2004), PAN, Warsaw 2004.

The analysis of data from the IERiGŻ-PIB questionnaire surveys showed that the main factors influencing the growth of educational aspirations of rural young people were the vocational plans associated with activeness in non-agricultural fields of the economy in rural areas, as well as in nearby urban areas or abroad. There were positive changes recorded in the education level in groups of both rural females and males (Tab. 2.12).

The questionnaire surveys conducted in IERiGŻ-PIB showed no significant differences in the education level between the population from agricultural and non-agricultural families[156].

Table 2.12. The educational level of the rural population (aged 13 years and upwards) during the years 2002-2009 according to gender

Years	Higher	Secondary and post-secondary	Basic vocational	Middle	Elementary
	In percentages				
Males					
2002	3.6	18.9	37.1	n/a	36.2
2004	4.7	21.7	37.2	5.9	29.4
2007	5.7	22.8	35.7	6.6	25.5
2009	6.5	24.0	35.2	7.0	24.0
Females					
2002	5.1	25.8	21.5	n/a	40.4
2004	6.1	27.2	21.6	5.7	34.4
2007	8.1	27.0	22.0	6.0	31.0
2009	9.4	27.5	22.1	6.1	30.0

Source: Personal study on the basis of Demographic Yearbooks, GUS 2005-2010.

According to GUS data of 2010 persons with secondary or higher education comprised approximately 43% of the working population in rural areas (approximately 71% in urban areas). The structure of education of the inhabitants of rural areas working in agriculture in comparison to the inhabitants of rural areas not working in agriculture was less favourable. Also among the unemployed and professionally inactive in rural areas the bigger group was that of the people with primary and basic vocational education. However, the education level can still be considered as an element in the social marginalisation of the rural community.

[156]In the study, a family is considered non-agricultural if it holds less than 1 ha UR, while agricultural families are those with holdings exceeding 1 ha

2.2. Pre-school care

One of the important problems present in rural areas is also limited access to public services, such as pre-school care. In recent years significant disproportions have been maintained in access to pre-school facilities in the city and in the country.

During the 2010/2011 school year, rural areas were home to over 10.5 thousand pre-school institutions (Tab. 2.13). These include pres-chools, pre-school divisions in elementary schools and the relatively recently founded groups of pre-school education and pre-school points. They were attended by over 300 thousand children (Tab. 2.14)

It should be noted that the differences in pre-school care (unfavourable to the inhabitants of rural areas in comparison with the urban population), are visible mainly in relation to the youngest (3-5 year-old) children (Tab. 2.15).

Table 2.13. Pre-school education in rural and urban areas during the years 2000-2010

	2000/2001	2005/06	2008/09	2009/2010	2010/2011
Pre-school establishments total					
Urban	6 765	6 886	7 351	7 851	8 406
Rural	11 238	10 343	9 929	10 412	10 684
Pre-schools					
Urban	5 386	5 154	5 359	5 609	5 907
Rural	3 115	2 584	2 679	2 832	2 901
Pre-school divisions in elementary schools					
Urban	1 379	1 732	1 951	2 073	9 048
Rural	8 123	7 759	7 082	6 930	
Pre-school education groups					
Urban	*	*	9	8	113
Rural	*	*	74	104	
Pre-school points					
Urban	*	*	32	161	1 121
Rural	*	*	94	546	

Source: The Statistical Yearbook of Poland, GUS 2010, Concise Statistical Yearbook, GUS 2011.

From the psychological and pedagogical viewpoint, this age is a time when the incurred expenditures bring the highest rate of return in future adult life.

Within the first three years of life the brain reaches approximately 60% of the size of an adult human being's brain, although naturally it does not match it in terms of functioning. The first years of life of a child shape and exercise an influence on the quality of an independent start in social life outside the family environment, the cognitive competences conditioning successes in the acquisition of knowledge about the world and oneself in the natural and institutional

environment – the preschool and school. This is also when attitudes in children are developed: interest in the world, self-esteem, self-reliance and persistence, concentration, listening and remembering, language skills and skills related to cooperating with others. The personality, individuality and identity are formed, conditioning the future quality of the realisation of personal tasks and the quality and method of fulfilling of roles in the domain of the family, vocations, and in the field of spending free time in the adult years[157]

Table 2.14. Pre-school education. Numbers of children in thousands

Specifcation	2000/2001	2005/06	2008/09	2009/2010	2010/2011
Preschool establishments total					
Urban	606.8	590.4	652.3	693.0	733.2
Rural	278.6	249.6	266.8	301.1	326.1
Pre-schools					
Urban	551.3	528.2	585.6	614.8	643.1
Rural	137.3	126.2	148.6	162.0	173.8
Pre-school divisions in elementary schools					
Total	196.8	185.6	180.8	202.9	219.7
Including 6-year olds	175.1	160.2	141.9	138.6	136.2
Pre-school education groups					
Urban	*	*	0.7	< 1.0	1.9
Rural	*	*	1.1	1.7	
Pre-school points					
Urban	*	*	0.6	3.1	20.8
Rural	*	*	1.8	9.6	

Source: The Statistical Yearbook of Poland, GUS 2010, Concise Statistical Yearbook, GUS 2011.

The reference literature indicates[158] that investments in the human capital of the youngest provide the greatest return – they are most profitable not only to the children themselves, but also to society, as in the long-term time perspective they translate to a higher level of prosperity, better health, and lower crime rates. The children devoid of the opportunity to learn at an early age irretrievably lose this period in life, in which their minds are the most receptive, and have no chance for the development of many skills important from the point of view

[157] A. Brzezińska, Społeczna psychologia rozwoju (The social psychology of development), Wydawnictwo Naukowe, Warsaw 2000.
[158] Cf. J. Heckmann, Invest in the very young, University of Chicago Press, Chicago, and: Polska 2030. Wyzwania rozwojowe. (Poland 2030. Developmental challenges.) M. Boni (ed.), The Chancellery of the Prime Minister, Board of Strategic Advisors to the Prime Minister, Warsaw, July 2009.

of the later development process and the successes achieved in adult life. The experiences of the western countries regarding the introduction of modern forms of early education show that the participating children develop skills of working in a group, learn foreign languages, gain faith in their own skills, and also learn how to learn. The positive effects of the implemented (early education) programmes are multidimensional and in a visible way positively influence the development of the child in the next three years of life and development. Parents are also measurably affected by the influence of such activities. The observable effects are, inter alia, a lower level of stress related to the upbringing of children and the greater efficiency in keeping children obedient, the lower tendency of children to aggressive attitudes and behaviour, better social skills, and greater involvement in learning in the later years.

Table 2.15. Pre-school education – Children in pre-school establishments per 1000 children in specified age groups

Age	2000/2001	2005/06	2008/09	2009/2010	2010/2011
Total					
3-6 years	500	556	631	673	699
3-5 years	327	410	527	597	646
6 years	972	976	945	912	867
Urban					
3-6 years	644	725	808	838	875
3-5 years	536	640	764	815	877
Rural					
3-6 years	350	380	439	494	534
3-5 years	149	167	264	356	424

Source: Personal calculations, the Statistical Yearbook of Poland, GUS 2010, Concise Statistical Yearbook, GUS 2011.

The accessibility and popularity of preschool care is in Poland not only low, but it also differs between urban and rural areas. Children from rural areas are as a general rule included in the education system later than children in urban areas. This is also related to the fact that in the rural environment there is no tradition of sending little children to preschools. Rural families are very often multigenerational, and most of the mothers are mainly engaged in the work in the household, so providing care to the youngest children is not difficult and for many rural parents does not present a problem.

It also needs to be emphasised that problems concerning preschool care do not involve rural areas to the same degree, which is mainly the result of the fact that there appear to be significant differences both within rural society and the rural areas themselves. The lower level of income and human capital, as well

as worse access to public services, are particularly evident in the so-called peripheral rural areas (distant from larger cities, unattractive in terms of tourism or dominated by small, so-called semi-subsistence farms).

On the one hand there is a need for incentives for families in the form of access to such kinds of facilities (day nurseries, preschools, little children's clubs, etc.) in the rural areas, and on the other for overcoming certain stereotypes, mostly related to the tradition predominating in the rural environment. Other forms of support for parents may entail the development and extension of their competence and knowledge.

2.3. The educational activeness of the rural population

It is understood that in Poland and other countries there is strong pressure on the education of children and young people who fall under the obligation of schooling. However, in transforming reality, progressing globalisation and the development of science and technology, modern communities must also exert pressure and create favourable conditions for the studies and education of adults.

Currently not only is the need for life-long learning emphasised, but also the need for life-wide learning. The adult must constantly extend knowledge and skills, not only in order to improve and update professional qualifications, but also in order to keep being an active member of the community. In the modern world the rate of the so-called ageing of knowledge is relatively fast, particularly in relation to specialist knowledge. Therefore learning cannot by identified with a certain single stage of life. A person must be prepared to constantly improve competences – also at the adult and senior ages.

This process, defined as "continuous education"[159], is associated with obtaining knowledge and skills throughout the entire life period. The education of adults may be conducted in various forms of organised educational activities. These include official educational activities or others aimed at – regardless of the content, level and methods – not only continuing or complementing the education previously gained in schools, academies and universities, but also gaining practical knowledge. Thanks to this, people considered as adults by their community expand their skills and knowledge, improve their technical and vocational qualifications or obtain a new profession. The educational process often translates into a change of attitude and the behaviour of its participants in the

[159] The definition of continuous education states that it is any form of education, initiated at any moment in life, in order to expand vocational, civic or social knowledge, competences or qualifications.

area of the extensive formation of the personality and participation in balanced and independent social, economic and cultural development. The support of educational motivations is particularly important in the case of people who for some reasons remain unemployed and at the same time do not benefit from the status of being unemployed, as well as retired people who may be interested in being re-employed or who perceive education as a form of personal activation[160].

In general in Poland the engagement of adult people in the process of continuing education is at a relatively low level. This particularly unfavourable situation is characteristic of the older age groups, where this indicator is ranked among the lowest in Europe. However, within the last ten years positive changes have been observed. This process should be maintained in the next years, as this translates to the competitiveness of the Polish employees, not only on the local labour market, but also grants the opportunity of employment in other countries in Europe. Participation in continuing education is also a very significant factor allowing older people to stay on the labour market. It is exactly low qualifications, lack of skills and the opportunity of supplementing them, which comprise the significant reasons due to which in Poland employees are excluded from the labour market relatively early in comparison to other countries.

Table 2.16. Population in households according to educational status and place of residence (during the years 2000-2009)

Specification	Percentage of people participating in educational services in curricular and extracurricular mode			
	20-24 years	25-29 years	30-39 years	Above 39 years
Urban*				
2000	61.1 - 45.8	16.7 – 8.5	4.7- 1.9	0.5-1.3
2009	83.0 - 58.0	28.7 - 16.4	7.5 - 6.9	2.7 - 1.5
Rural				
2000	26.0	7.1	0.3	0.3
2005	50.8	8.9	1.8	0.9
2009	47.6	11.4	3.8	0.9

*data format: cities of population 500 thousand and more - cities of 20 thousand and less.
Source: Elaborated on the basis of: Social Diagnosis 2007 – The Conditions and quality of life of Polish citizens, edited by J. Czapiński and T. Panek, Social Monitoring Council, Warsaw 2009.

A positive signal in relation to continuing education is the increase in the percentage of educationally-active persons at the age of 25-29 years or older.

[160] Cf. Polska 2030. Wyzwania rozwojowe. (Poland 2030. Developmental challenges) scientific editing: M. Boni, The Chancellery of the Prime Minister, Board of Strategic Advisors to the Prime Minister, Warsaw, July 2009.

However, the stabilisation of the educational activeness of adult inhabitants in rural areas is alarming in comparison to the growth of interest in education of the adults in urban areas. The increase in the general participation of people who benefit from educational services in the years 2000-2011 among the population at the age of 25-29 years results from the beneficial changes in the scale of educational activeness among inhabitants of cities (especially the large ones), the result of which are deepening territorial differences in the disadvantage of the inhabitants of rural areas and towns (Tab. 2.16 and Tab. 2.17).

Table 2.17. The educational activeness of the population 20-24 years old in households (during the years 2000-2009) according to gender and place of residence

Specification	2005	2007	2009
Females			
Urban*	59-76	60-84	64-87
Rural	59	54	54
Males			
Urban	46-69	57-81	51-81
Rural	42	43	42

*data format: cities of population 500 thousand and more - cities of 20 thousand and less.
Source: Study on the basis of: Social Diagnosis 2007 – The Conditions and quality of life of Polish citizens, edited by J. Czapiński and T. Panek, Social Monitoring Council, Warsaw 2009

In the next age group (i.e. people aged 30-39), their previous low educational activeness failed to improve during the years 2000-2009. The lack of the tendency to participate in educational services of people aged over 39 years is even stronger.

During the examined period, there was a recorded growth in the significance of extracurricular services[161], organised in forms of courses and training both at and beyond work among people aged over 24, but this is still not a significant form of services. In 2009, such education was chosen by only 7.5% of people aged 25-29 and 31% of people aged 30-39.

According to the study conducted within the framework of the last Social Diagnosis, in the year 2011 the differentiation clearly changed also in the educational activeness of women and men at the age of 20-24, according to their place of residence. Women in this age group residing in urban areas used educational

[161] A slight drop in the significance of public schools and academies in the education of adults is associated with the development of the education services market. It should also be noted that the past four years has seen the initiation of the European Social Fund in Poland, which finances a significant part of educational services for adults conducted mainly by non-public units.

services to a lower degree than in the previous years, as compared to the female inhabitants of rural areas. As a result of a decrease in the educational activeness of men in this age group, the educational gap between women and men also widened, especially in the rural areas and large cities[162]. Similarly to the earlier years, the level of educational activeness decreased in the next subsequent age groups. People in 2011 in the 30-39 age group, took advantage of the process of education three times less frequently than people at the age of 25-29. In the city this percentage in general amounted to 4.3%, and in rural areas to 1.9%. In general the educational activeness of people at the age of 18 or more mainly took the form of education in schools or higher education institutions.

Table 2.18. The educational activeness of the population in households in Poland during the years 2005-2009 – curricular and extra-curricular modes

Specification	2005	2007	2009
Schools or higher academies	92.0	87.0	92.0
Public schools	88.0	80.0	83.6
Aged			
18-24 years	67.0	74.0	70.2
25-29 years	14.0	11.0	14.0
30-39 years	5.0	8.0	8.7
Extra-curricular services			
25-29 years	5	14	7.5
30-39 years	28	30	31.0
Percentage of people aged over 24 participating in extra-curricular education			
Higher	60	47	53
Secondary and post-secondary	22	32	35

Source: Study on the basis of: Social Diagnosis 2007 – The Conditions and quality of life of Polish citizens, edited by J. Czapiński and T. Panek, Social Monitoring Council, Warsaw 2009

It should also be noted that 53% of the people participating in extra-curricular activates held higher education, while 35% had secondary and post-secondary. This shows a high rate of selectiveness of educational activeness of adults according to education.

Therefore, the process of expanding the qualifications of adults continues to be selective and have small range. It can be said that the education of adults, not only in rural areas but on a national scale, continues to be marginal. This is

[162] Social Diagnosis 2009. Warunki i jakość życia Polaków (The conditions and quality of life of Poles), J. Czapiński and T. Panek [eds], The Social Monitoring Council, Warsaw 2007, 2009, 2011.

confirmed by the comparison with Western Europe countries, which shows that Poland has the lowest employment indicators for people aged 55-64, the reasons for which include educational passiveness. Therefore, there is a growing need to expand the qualifications of people aged 30 and over, particularly in rural areas, since the future of these people will likely be filled with a relatively long period of vocational activeness with limited opportunities for educational activeness.

The role of the appropriate quality of education and its influence on the economic activeness of the rural population is proved by the fact that the beneficiaries of CAP instruments (this does not include the instruments which to some extent were due and were relatively easily accessible, such as direct subsidies or structural pensions, but those, which required activeness and initiative), were mostly the farmers with the highest level of education and taking advantage of the cooperation with agricultural advisors[163].

In addition the estimates and forecasts predict that by 2025 as much as 250-300 thousand new job positions will be created in the professions based on knowledge and this will make for approximately 45% of all job positions[164]. Access to these will be reserved for people oriented towards the continuous development of qualifications. Therefore the low percentage of adult Poles participating in the system of continuing education is alarming and comprises a significant developmental barrier, not only in rural areas, but also on a nationwide scale[165].

2.4. Selected aspects of cultural life in rural

2.4.1. The participation of the inhabitants of rural areas in events, courses, circles and art groups

The rural population's participation in events and activities organised by establishments associated with cultural and educational development is a peculiar complement, an expansion of the educational field and level, as well as a peculiar form of educational activity. The activity of such entities can be perceived as an important element influencing not only the arousal of the cultural interests of individual rural residents, but also the preservation of tradition and local art.

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[163] Cf. Ekspertyza dotycząca "Oceny Śródniookresowej Programu Rozwoju Obszarów Wiejskich na lata 2007-2013" (Expertise on the "Medium-term evaluation of the Rural Development programme 2007-2013"). Ministry of Agriculture and Rural Development, Warsaw 2010.

[164] The forecast of the UNDP 2007.

[165] Polska 2030. Wyzwania rozwojowe. (Poland 2030. Developmental challenges.) scientific editing: M. Boni, The Chancellery of the Prime Minister, Board of Strategic Advisors to the Prime Minister, Warsaw, July 2009.

Table 2.19. Cultural centres, clubs, common rooms in rural areas during the years 2001-2009

Specification	2001		2005		2009	
	in thousands	in % of total	in thousands	in % of total	in thousands	in % of total
Institutions	2.2	**59.4**	2.3	**58.9**	2.4	**60.0**
Specialist workshops	1.2	**28.8**	1.4	**29.1**	1.7	**33.6**
Events*	60.2	**27.6**	58.7	**28.1**	63.0	**26.5**
Courses*	1.1	**20.0**	1.1	**19.6**	2.0	**28.4**
Artistic groups	4.6	**30.6**	5.1	**29.4**	5.6	**30.5**
Clubs	1.2	**18.5**	2.1	**20.3**	2.5	**21.7**

* during one year

Source: The Statistical Yearbook of Poland, GUS 2002, 2010.

In 2009, there were 2.4 thousand institutions, 1.7 thousand specialist workshops, 5.6 thousand artistic groups and 2.5 thousand clubs of interest active in rural areas. 63 thousand cultural events were organised. Although these figures grew in relation to the beginning of this century, the rural areas continue to host a relatively low percentage of such establishments (Tab. 2.19).

Table 2.20. The number of participants in organised events and members of courses and artistic groups in rural areas during the years 2001-2009

Specification	2001		2005		2009	
	urban	rural	urban	rural	urban	rural
Event participants* in millions	24.7	6.6	25.2	7.1	27.1	7.4
Course graduates * in thousands	75.1	17.5	71.0	20.5	86.3	29.0
Including children and young people **	42.2	11.6	44.9	12.1	37.1	17.0
Group members in thousands	152.9	68.8	195.3	80.6	201.5	85.8
Including children and young people **	86.6	38.9	112.0	44.9	110.1	45.9
Club members in thousands	153.6	36.0	185.8	52.0	216.0	58.2
Including children and young people **	49.4	11.6	75.6	24.1	80.0	24.2

* during one year

**young people up to 15 years

Source: Based on the Statistical Yearbook of Polands, GUS 2002, 2010.

Therefore, a smaller percentage of the rural population is able to participate in such events and activities (Tab. 2.20). These differences are visible in both the total population and among children and young people. In comparison to 2001, in 2009 the proportion of children and young people aged 15 and under among graduates of courses and members of artistic groups slightly fell in comparison with the older population. It should be noted that during the analysed period, the percentage of children and young people among the members of clubs of interest grew (Tab. 2.21).

However, there is a continuously low number of people participating in such activities, in both the age group of 7-15 years and older people (Tab. 2.22), but there is a maintained difference between rural and urban areas, particularly noticeable in the first of the distinguished social groups.

Therefore, rural areas host almost half as many children and young people among the participants in such events and members of clubs and artistic groups as urban areas (per 1000 people). In both communities, per 1000 people in the age group of 15 to 74 years, only a few expand their interests and skills.

Table 2.21. The percentage of children and young people (up to 15 years) among the participants in events, clubs, groups and graduates of courses in rural and urban areas during the years 2001-2009

Specification	2001	2005	2009
Urban			
Course graduates	56.2	63.2	43.0
Group members	56.6	57.3	54.6
Club members	32.2	40.7	37.0
Rural			
Course graduates	66.3	59.0	58.6
Group members	56.5	55.7	53.5
Club members	32.2	46.4	41.6

Source: Based on the Statistical Yearbook of Poland, GUS, 2010.

Table 2.22. The number of course graduates and course participants, and of artistic group members per 1000 people in specified age groups in rural and urban areas during the years 2001-2009

Specification	Per 1000 people in age group					
	From 7 to 15 years			15-74 years		
	2001	2005	2009	2001	2005	2009
Urban						
Course graduates	17	23	22	2	1	3
Group members	35	57	65	4	4	5
Club members	20	38	48	6	6	7
Rural						
Course graduates	6	7	12	1	1	1
Group members	20	27	32	3	3	3
Club members	6	14	17	2	3	3

Source: Based on the Statistical Yearbook of Polands, GUS 2002, 2010.

It should be noted that the main role and responsibility for the popularisation of culture and education in rural areas lies with the regional local governments. The activity level of such centres depends mainly on their financial condition.

2.4.2 Libraries

A library can be considered as one of the main cultural and educational centres, thus a carrier of rural culture. Although during the analysed period the number of libraries (including library points) and the state of the book collections underwent slight changes, the reading level measured in the number of readers per 1000 people in the age group of 7-74 years has fallen considerably, much like the number of borrowed volumes (Tab. 2.23).

Table 2.23. Public libraries (with branches) in rural and urban areas during the years 2000-2010

Specification	2000		2005		2010	
	urban	rural	urban	rural	urban	rural
Libraries in thousands	3.0	5.9	2.9	5.7	2.9	5.5
Library points in thousands	0.8	1.7	0.6	1.2	0.5	0.9
Book collection in millions of volumes	79.4	56.4	79.4	55.7	79.0	54.2
Readers in millions*	5.5	1.9	5.4	1.9	4.8	1.7
Readers per 1000 people aged 7-74	260	153	263	148	236	133
Borrowings in millions of volumes during one year	107.0	40.2	102.5	38.7	87.0	32.9
Borrowings per 1 reader in volumes	20	21	19	21	18	20

Source: The Statistical Yearbook of Poland, GUS 2010, Concise Statistical Yearbook, GUS 2011.

The research conducted within the framework of Social Diagnosis 2011 indicates that in the households located in rural areas the necessity of resigning from purchasing books has been reported as often as in rural areas. However, rural households, much more often than in urban areas, did not possess book collections (over 20% of households in rural areas in comparison to almost 5% of households of the inhabitants of the largest cities).

2.4.3. Cinemas and television

The number of cinemas in rural areas has drastically dropped (Tab. 2.24 and Tab. 2.25). This was caused by the general transformations in this field, which took place in our country during recent decades. The old venues and mobile cinemas are closed in favour of multiplexes, which are usually located in or near shopping centres in large cities. Such venues are usually accessible to the population of rural suburbia.

Table 2.24. Cinema activity during the years 2000-2009

Specification	2000		2005		2009	
	Total	Rural (%)	Total	Rural (%)	Total	Rural (%)
Fixed cinemas	675	5.3	536	4.5	448	3.8
Seats in cinemas (in thousands)	227	3.8	235	2.6	248	2.0
Screenings (in thousands)	527	2.0	948	2.0	1417	1.5
Audiences in cinemas (in thousands)						
fixed	20860	1.1	24836	1.6	38975	1.4
mobile	32	71.4	29	59.0	83	14.3

Source: Based on the Statistical Yearbook of Poland, GUS 2010.

Table 2.25. Cinemas in rural areas during the years 2000-2009

Specification	2000	2005	2009
Fixed cinemas			
Number of cinemas	36	24	17
Seats in cinemas in thousands	8.5	6.0	4.9
Screenings in thousands	10.5	17.9	21.0
Audiences in cinemas in thousands	225.4	388.7	526.1
Audiences per 1 cinema	6 261	16 196	30 949
Road cinemas			
Screenings in thousands	1.0	0.4	0.2
Audiences in cinemas in thousands	23.0	17.3	11.8
Audiences per 1 screening	23	43	59

Source: Based on the Statistical Yearbook of Poland, GUS 2010.

The regression of small and mobile or seasonal cinemas has also been influenced by the relatively easy access and the broad selection of satellite television channels or the copying of files with movies from the Internet.

Television and the Internet are becoming the universally-available carriers of cultural content. Social Diagnosis 2011 shows that television is used more by people who have no other cultural needs. However, it needs to be emphasised that, in comparison to urban areas, in rural areas television is watched to a lower extent[166], as the cable television package in the cities is fuller and more attractive than terrestrial television, which mostly reaches rural areas, and farmers demonstrate greater attachment to their work than other professional groups. The time devoted to watching television is also influenced by the education of the viewers. In 2011 twice as high a percentage of people with primary and lower level of education in comparison with people with higher and post-secondary education watched television for more than three hours per day[167].

2.5. The civilisational competences of the rural population

2.5.1. Equipment in households – computers and the Internet

In recent years the percentage of the households in possession of a computer as well as access to the Internet has increased significantly. On the nationwide scale in the year 2011 two-thirds of households had a computer, and 27.8% of households had more than one such device. In turn, 61.1% of families had access to the Internet[168]. An important problem, though, is the inequality of the access to the Internet on the territorial dimension. Nevertheless in rural areas, in the year 2009 in relation to the year 2005, this rate doubled. (Tab. 2.26). Positive changes have also been noticed in the group of farmers (Tab. 2.27).

However, in the years 2005-2009 the unfavourable difference in relation to people residing in urban areas still persisted, where 61.2% of households have access to the Internet, in comparison to 47.3% of households in rural areas.

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[166] According to Social Diagnosis 2011, in urban areas, depending on their size, three or more hours for watching TV programmes were devoted by 30.3% to 35.9% of people, while in the country 27% of people, and in the group of farmers 18.9%. A fairly significant percentage of farmers (14.1%) watched TV for less than one hour or did not watch the broadcast programmes at all.

[167] Cf. Social Diagnosis 2009. Warunki i jakość życia Polaków (The conditions and quality of life of Poles), J. Czapiński and T. Panek [eds], The Social Monitoring Council, Warsaw 2011, p. 116, 117, 260.

[168] Cf. Social Diagnosis 2009. Warunki i jakość życia Polaków (The conditions and quality of life of Poles), J. Czapiński and T. Panek [eds], The Social Monitoring Council, Warsaw 2011, p. 299, 302.

A deepening discrepancy was also indicated by the research conducted in 2011 within the framework of Social Diagnosis. They show that in the first half of 2011 in rural areas 58.9% of households had a computer and 51.5% access to the Internet, and although these amounts, in relation to the previous years of the research, have grown significantly, in urban areas this situation was still more favourable. In the cities, depending on their size, the computer was in the possession of 77.1% to 65% of households, and the Internet from 73.3 % to 61.4% of households.

Table 2.26. Households with Internet access according to connection types in the years 2005, 2008 and 2009 (% of total households)

Specification	Percentage of households					
	2005		2008		2009	
	urban	rural	urban	rural	urban	rural
Total	36.1	18.8	52.2	33.7	61.2	47.3
With connection:						
Broadband	57.2	27.6	44.7	29.3	56.3	40.6
Through landlines – digital subscriber lines (DSL)	30.1	17.1	20.9	16.9	21.3	24.1
Other	31.1	11.8	24.6	7.2	37.4	18.3
Narrowband	15.5	13.6	7.4	9.8	6.2	10.0
Through landlines – analogue modem or digital modems (ISDN)	32.3	40.9	7.2	8.5	6.7	7.3
Through mobile phones	41.8	53.0	3.1	4.0	6.1	8.2

Source: The Statistical Yearbook of Poland, GUS 2010.

One of the main reasons for the existence of inequalities in urban and rural areas is the lack of reach of appropriate technologies, as the rural areas often are the so-called "uncharted territory in terms of access". Thus in those areas the reach of DSL technologies is limited, cable technologies are unavailable, and in many places a wireless infrastructure is being implemented – being a solution to the problem of access in the areas where due to the high dispersion of inhabitants the cost of investment in other technologies is too high.

Table 2.27. Households of farmers owning a computer with Internet access in the years 2005 and 2009 (% of total households)

Specification	2005	2009
Computer	35.6	68.6
Printer	23.2	48.4
Internet access	11.4	50.5
Broadband access	*	29.3

Source: The Statistical Yearbook of Poland, GUS 2010.

The slow development of broadband access to the Internet in Poland is conditioned by a series of factors. The combining of a large area of the country and the relatively high dispersion of inhabitants hampers the increase in the scale of access, as the expenditures on infrastructure to a lower extent translate to an increase in the reach of technology in the less populated areas, and the investments are not cost-effective. Another obstacle is the low development level of fixed telephony and cable television networks, providing an Internet access infrastructure[169].

Table 2.28. The percentage of people aged 16-74 years using the Internet according to the location of use in the years 2008 and 2010

Specification	2005		2008		2010	
	Urban	Rural	Urban	Rural	Urban	Rural
Total	**50**	**30**	**57**	**36**	**65**	**48**
In place of residence	27	9	48	27	60	43
In homes of other people	10	5	10	7	13	9
At work	14	6	19	8	24	10
In school or academy	10	10	9	8	9	9
In another public location	7	4	4	2	7	3

Source: Concise Statistical Yearbooks, GUS 2009, 2011.

The Internet is used most frequently in own homes by both rural and urban residents (Table 2.28), which is followed by work and homes of other people. The relatively high percentage of rural schools, particularly elementary and middle schools, equipped with computers is also noteworthy (Table 2.29).

Table 2.29. The percentage of schools equipped with computers (in % of a given school group) during the years 2001-2008

Specification	2001/02	2004/05	2007/08	
			Rural	Urban
Elementary schools	78.9	89.0	94.8	95.7
Middle schools	81.6	80.5	81.9	82.7
General secondary schools	42.7	45.8	56.1	73.8

Source: The Statistical Yearbook of Poland, GUS 2010.

[169] Cf. Polska 2030. Wyzwania rozwojowe. (Poland 2030. Developmental challenges.) scientific editing: M. Boni, The Chancellery of the Prime Minister, the Board of Strategic Advisors to the Prime Minister, Warsaw, July 2009.

Thus the Polish schools may play an important role in the overcoming of digital exclusion. There is, however, no data on the methods of utilising these resources. Also in Poland in recent years numerous programmes have involved the creation of Public Internet Access Points (PIAP) – computer labs with Internet access established in various kinds of public institutions[170]. As a result the available equipment resources and infrastructure are often not fully utilised. The established points do not always reach all the excluded groups, either. There is for example no nationwide project which would systematically reduce the digital exclusion of older people.

2.5.2. The use of computers and the Internet

The percentage of people using computers and the Internet has grown in both rural and urban areas during the past five years (Tab. 2.30). It should be noted that computers and the Internet are used not only for fun, but mainly to send and receive electronic mail, search for information on goods and services, purchase goods and services or search for health information (Tab. 2.31 and Tab. 2.32).

Table 2.30. The percentage of people aged 16-74 years using computers and the Internet during the years 2005 – 2009, according to place of residence

Specification	Percentage of people aged 16-74 years					
	2005		2008		2009	
	urban	rural	urban	rural	urban	rural
People who use computers	61.3	42.6	66.7	50.7	71.2	57.0
People who use the Internet	49.6	29.5	59.7	39.3	67.4	51.1

Source: Concise Statistical Yearbook, GUS 2009, 2010, 2011.

[170] According to the data from the study: Polska 2030. Wyzwania rozwojowe. pod red. naukową M. Boni, Kancelaria Prezesa Rady Ministrów, Zespół Doradców Strategicznych Prezesa Rady Ministrów, Warszawa, lipiec 2009 (Poland 2030. Development challenges. edited by M. Boni, the Scientific Office of the Prime Minister, the Board of Strategic Advisors of the Prime Minister, Warsaw, July 2009), in the largest, nationwide projects, established i.a. were: 2920 PIAPs in libraries in all the Polish municipalities within the framework of the "Ikonka" (Little Icon) programme, over 900 municipal information centres assuming the combination of the function of PIAP and a career counselling point, 256 "Internet village" type centres, 379 remote education centres in the country, 480 Internet education centres at fire-stations and 360 school career centres. The computer labs established within the framework of the projects "Computer labs for schools" and "Online multimedia information centres in school and pedagogical libraries" also operate in each Polish school.

Table 2.31. The percentage of people aged 16-74 years using computers and the Internet during the years 2005 – 2010 according to the purpose of use and place of residence

Specification	Percentage of people aged 16-74 years					
	2005		2008		2010	
	urban	rural	urban	rural	urban	rural
Sending and receiving electronic mail	31	13	46	24	55	36
Participation in chat rooms and discussion forums	18	11	36	21	46	35
Searching for information on goods and services	23	10	39	22	44	31
Purchasing goods and services	8	2	16	7	24	14
Listening to the radio, watching television though the Internet	8	3	21	13	25	17
Online reading, downloading files with newspapers or periodicals	16	6	23	11	20	12
Searching for information concerning health	10	2	23	11	29	19
Using banking services	8	2	23	7	32	14
Using public administration services	16	6	20	9	25	12

Source: Concise Statistical Yearbook, GUS 2009, 2010, 2011.

Table 2.32. The percentage of people aged 16-74 years using computers and the Internet during the years 2005, 2008, 2009, according to the purpose of use and place of residence

Specification	Percentage of people aged 16-74 years					
	2005		2008		2009	
	urban	rural	urban	rural	urban	rural
Telephone conversations and videoconferences through the Internet	5.9	2.0	17.6	9.9	23.2	14.2
Using tourist websites	8.8	2.0	18.5	6.3	18.4	7.3
Playing computer games, downloading files with games, music, graphics, etc.	14.8	7.1	14.3	9.0	22.7	14.8
Downloading computer programs	9.6	4.0	15.3	7.5	19.0	11.2
Searching for work, sending applications concerning employment	6.0	2.2	10.3	4.5	11.0	5.7

Source: Based on the Statistical Yearbook of Poland, GUS 2010.

In addition, worthy of attention are the relatively high information technology skills of people using computers (Tab. 2.33 and Tab. 2.34). However, the entire analysed period (the years 2005-2009) continues to maintain differences between the selected groups of the urban and rural population.

Table 2.33. The IT skills of people aged 16-74 years using computers

Specification	Percentage of people aged 16-74 years					
	2005		2007		2009	
	urban	rural	urban	rural	urban	rural
People who use computers	61.3	42.6	66.7	50.7	71.2	57.0
Including the following activities:						
Copying or moving files or folders	45.1	30.3	50.5	36.3	51.4	37.1
Using mathematical functions in spreadsheets	24.7	15.2	30.7	21.1	31.2	20.4
File compression	19.3	9.4	21.3	11.0	22.1	14.0
Installation of new devices			29.3	17.3	30.8	21.2
Computer program writing	6.1	3.1	5.8	3.1	6.0	3.6

Source: The Statistical Yearbook of Poland, GUS 2010.

Table 2.34. The IT skills of people aged 16-74 years using the Internet

Specification	Percentage of people aged 16-74 years					
	2005		2007		2009	
	urban	rural	urban	rural	urban	rural
People who use the Internet	49.6	29.5	59.7	39.3	67.4	51.1
Including the following activities:						
Using search engines	44.4	26.9	55.1	35.9	58.6	41.5
Sending e-mails with attachments	33.8	16.3	42.6	22.7	46.4	28.6
Participation in chat rooms and discussion forums	22.8	13.2	26.7	16.8	20.9	14.8
Telephone conversations through the Internet	9.0	3.8	18.9	8.5	25.1	16.3
Website creation	7.2	4.4	8.4	5.2	6.6	4.3

Source: The Statistical Yearbook of Poland, GUS 2010.

This means that the percentage of children in rural areas able to, e.g., send an e-mail with an attachment, compress files or use an Internet search engine is still lower than that of urban areas.

The 2009 Social Diagnosis shows that despite the fact that less people use such technologies in rural areas, the place of residence has a smaller impact on the value of this indicator than, e.g., the age or education of the respondents.

A peculiar barrier in the use of a computer is not only the fact of owning one, but also the lack of adequate motivation or will to obtain the skills to use this device. In 2009, as many as 17.3% of Polish citizens aged 16 and over had a computer in their household, but did not use it. The research also showed that males tend to use information and communication technology slightly more frequently than females. In the total group of males in Poland, 57% of this group used computers and 53% used the Internet (in 2009)[171].

It should be noted that in today's society, the lack of computer and Internet skills or lack of access to such devices and media might be considered as a peculiar disability or even social exclusion, since these technologies are increasingly common and simultaneously growing in capabilities, which are becoming necessary in both everyday life and work or the education system.

The low competences, or their lack, are to a large extent the result of education. Until 2030 the problem will still be the lack of competences among the older generations, educated in the times before the spread of digital technologies. However, in the case of the younger generations, regardless of the constant presence of digital technologies in their life, the system of education must teach the useful application of the new technologies. It also needs to be considered that in the next decades new technologies may appear, causing the arising of new digital divisions[172].

2.5.3. Command of foreign languages

The percentage of the rural population with command of foreign languages has also increased. For example, in 2007 24.4% of rural residents had active and passive command of the English language, 17.2% of German and 41% of Russian. In relation to 2005, in the case of the mentioned languages, the percentage of people with command of them grew by over two percentage points (Table 2.35). However, there continues to be a difference in relation to urban residents, where the percentage of people with command of a foreign language is twice as high as that of rural areas.

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[171] See Social Diagnosis 2009 – The Conditions and quality of life of Polish citizens, edited by J. Czapiński and T. Panek, Social Monitoring Council, Warsaw 2009, p. 289 and p. 293.

[172] Polska 2030. Wyzwania rozwojowe. (Poland 2030. Developmental challenges) scientific editing: M. Boni, The Chancellery of the Prime Minister, Board of Strategic Advisors to the Prime Minister, Warsaw, July 2009

Table 2.35. The percentage of total students in elementary schools learning foreign languages in rural and urban areas during the years 2000-2011

Specification	2000/2001		2004/2005		2010/2011	
	urban	rural	urban	rural	urban	rural
Mandatory education						
English	46.7	38.0	53.6	46.7	91.3	88.4
French	1.6	0.6	0.9	0.2	0.4	0.1
German	20.6	18.4	16.6	16.8	8.1	10.2
Russian	2.6	12.5	1.0	5.1	0.1	1.3
other	0.3	0.3	0.1	0.1	0.2	0.1
Additional education						
English	8.2	8.1	17.8	21.9	2.8	4.4
French	0.3	0.2	0.8	0.3	0.7	0.2
German	1.8	2.1	6.5	6.8	7.0	7.5
other	0.5	1.2	1.2	1.3	1.0	3.5

Source: Concise Statistical Yearbooks, GUS 2001, 2006, 2011.

The low command of foreign languages among the rural population is confirmed by the research conducted in field of the 2009 Social Diagnosis. They indicate that the weakest command of foreign languages is among farmers; only 6% of this group has active command of at least one foreign language. This indicator was similar for the groups of household help, cleaners or labourers of various fields.[173]

Another noticeable fact is the high percentage of the rural population with command of the Russian language. This skill is particularly popular in the group of farmers. The active and passive command of such languages among rural residents and the specified group of farmers is on a decisively lower level (Table 2.36). The youngest age groups of children mainly influence these positive transformations concerning increased command of foreign languages, and young people, who not only learn foreign languages in various types of schools, but a relatively high percentage of whom are taught foreign languages during extra-curricular activities. These figures are comparable in rural and urban areas. This may indicate the growth of the educational awareness of the parents in both types of group, which translates into equal care for this element of the education of children, regardless of the place of residence.

[173] See: Social Diagnosis 2009 – The Conditions and quality of life of Polish citizens, edited by J. Czapiński and T. Panek, Social Monitoring Council, Warsaw 2009, p. 242.

Table 2.36. The population in households during the years 2005-2007 according to command of foreign languages

years	Percentage of people with (active and passive) command of languages:			
	English	German	French	Russian
Urban				
2005	43.2-27.1	23.6-19.4	7.1-3.5	34.5-28.0
2007	49.3-30.2	25.0-24.8	8.2-3.2	35.6-30.9
Rural				
2005	21.6	16.2	3.2	22.7
2007	**24.4**	**17.2**	**2.1**	**24.6**
Farmers				
2005	6.1	10.2	3.8	33.8
2007	**8.4**	**13.4**	**2.0**	**41.8**

Source: Study on the basis of: Social Diagnosis 2007 – The Conditions and quality of life of Polish citizens, edited by J. Czapiński and T. Panek, Social Monitoring Council, Warsaw 10.09. 2007.

2.5.4. Driver's licence

Another ability necessary in the modern world is the skill to drive a car, which requires possession of a driver's licence, since this skill demands evidence of specific attributes and predispositions.

Table 2.37. The population in households during the years 2005-2007 according to possession of driver's licences

	Cities with number of residents		Rural	Farmers
	above 500 thousand	below 20 thousand		
2005	47.9	43.5	39.1	66.2
2007	48.2	40.3	40.3	68.6

Source: Study on the basis of: Social Diagnosis 2007 – The Conditions and quality of life of Polish citizens, edited by J. Czapiński and T. Panek, Social Monitoring Council, Warsaw 10.09. 2007.

Particularly in the rural environment, a car plays a very important role. It is often necessary in the household due to the need to commute to work. The mass statistical data shows that rural residents are equipped with cars on a higher level than the residents of urban areas. The questionnaire surveys conducted in IERiGŻ-PIB showed that in 2005, 54% of rural families owned a car, including 69.5% of agricultural families and 42.35 non-agricultural families.

One in ten agricultural holdings had a second family car[174]. With this, a driver's licence is carried by a significant percentage of the population (Tab. 2.37).

These sizes are generally comparable in both rural and urban communities. This skill is relatively high, particularly in the households of farmers, where in 2007 this permit was recorded in over two-thirds of the households.

* * *

One of the conditions for the increase of human capital in Poland, and therefore the increase in the productivity of employees and the competitiveness of the Polish economy, is an efficient system of education. Regardless of the improvement in the standard results of education, its important task is the effective equalisation of development opportunities for people from various environments and areas. Education has an essential significance for this development, also on a regional scale. The most important challenges and problems in this respect are, among others, the providing of all children with access to early education in preschools, the individualisation of the process of education so that it is adjusted to the needs of different pupils, and the activities towards the generalisation of education of adults, consisting of both the improvement in the availability and ensuring awareness of the benefits of life-long learning.

Although in recent years beneficial changes have been recorded, including the double increase in the percentage of people with higher education who resided in rural areas, the differences in relation to the population from urban areas were still significant. In the city the rate of growth of the percentage of people at the age of 20-24, continuing education was even faster and the stabilisation of this proportion for the inhabitants of rural areas contributes to the further increase in the already unfavourable to the rural areas differences in the structure of education of the population.

Education of the adults, meaning people who finished the stage of education compulsory in the country, is the factor which marginalises the rural population on the labour market. However, in recent years certain positive symptoms have appeared in relation to the education of adults, although the process of improving the qualifications of adults is still selective and is relatively limited in range.

The rural population, similar to the entire society, has to be aware of and prepared for professional mobility, not infrequently repeated change of profession

[174] See A. Wrzochalska: "The life level of rural families after one year of European Union accession", Report No. 36 PW, IERiGŻ-PIB, Warsaw 2006

or profile of work, and constant improvement in qualifications, which are too limited to translate to professional advancement or high economic activeness.

Considering the assessment of the level of education and the qualifying skills of the rural population (including the access to new digital technologies), one may conclude that the preparation for functioning in modern society and on the modern labour market of the people of mobile age is insufficient. The improvement of their chances of finding a job therefore requires special actions directed towards an increase in their employability.

Bożena Karwat-Woźniak

Chapter III.
The social and demographic structure and vocational activeness of populations from holdings with various competitive abilities

The demographic phenomena (including primarily the pace of population growth rate) are autonomic factors, but the profile of the population (age, gender, education level, professional aspirations) in given conditions might restrain or stimulate the developmental processes of the agricultural sector, which are directly associated with the diversification of the economic activeness of the agricultural population and the pro-effectiveness structural transformations of Polish agriculture. These changes are not only a major problem for the development of agriculture and rural areas, but also the entire country[175].

The subject of this study is the nature of the social and demographic profile of the semi-subsistence farm population presented in comparison to the population of large commercial farms, i.e. those with income from agricultural activity at least at a similar level to the average income gained from non-agricultural labour[176].

For the purposes of this study, semi-subsistence farms are considered as all individual agricultural holdings with annual production volume not allowing them to achieve a satisfactory income from agricultural activity per 1 full time employee, which is considered as the average income obtained by the majority of non-agricultural employees. In 2005, the production size defined in this manner amounted to a maximum of 32 thousand PLN[177].

Group of large commercial farms is composed of units with production oriented exclusively for trade in order to obtain a possibly-high income (profit). These holdings produce agricultural raw materials mainly on the basis of hired labour. They are managed by an employed supervisor or directly by the owner, who usually does not work physically in the conducted agricultural activity.

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[175] J.St. Zegar, Struktura polskiego rolnictwa rodzinnego pod koniec pierwszej dekady XXI wieku (Structure of Polish family farming at the end of first decade of XXI century), IAFE-NRI, Warsaw 2009, p. 57.

[176] The issues relating to the regulations of qualifying individual holdings and the criteria for selecting large commercial units are detailed in the studies: B. Karwat-Woźniak, Możliwości rozwojowe chłopskiego rolnictwa na przykładzie gospodarstw wysokotowarowych, Raport nr 10, IAFE-NRI, Warsaw 2005; and: B. Karwat-Woźniak, P. Chmieliński, Highly commercial farms in family farming in Poland", Report no. 72.1, IAFE-NRI, Warsaw 2007.

[177] The volume of commercial production defined in this manner comprised at most 90% of the average value of agricultural product sales calculated per market holding in the entire examined group.

In this group, the household is completely separated from the production activity, the extent of which no longer depend on the size of the family (own labour resources), but the volume of the involved capital and management effectiveness[178].

The main empirical materials included data from the IAFE-NRI field surveys conducted in 2005. These surveys collected information from respondents on the basis of a questionnaire. The poll covered 3705 agricultural holdings in use by physical persons with an agricultural land (AL) exceeding 1 ha, i.e. individual agricultural holdings being de facto family holdings[179]. All entities were located in 76 villages selected for the research. These locations were selected purposely, in order to represent different regions of the country, and for the area of the examined holdings to reflect the actual territorial structure of all individual agricultural holdings. It should also be noted that in individual agriculture, which is the predominant type in Poland, the holding area is closely bound to the level of production capital, the profile of farmers and their family members, as well as the main profile of the conducted agricultural activity. For this reason, it is possible to state that the examined group greatly reflected the structural profile of Polish agriculture.

3.1. The prevalence of semi-subsistence and large-scale commercial farms

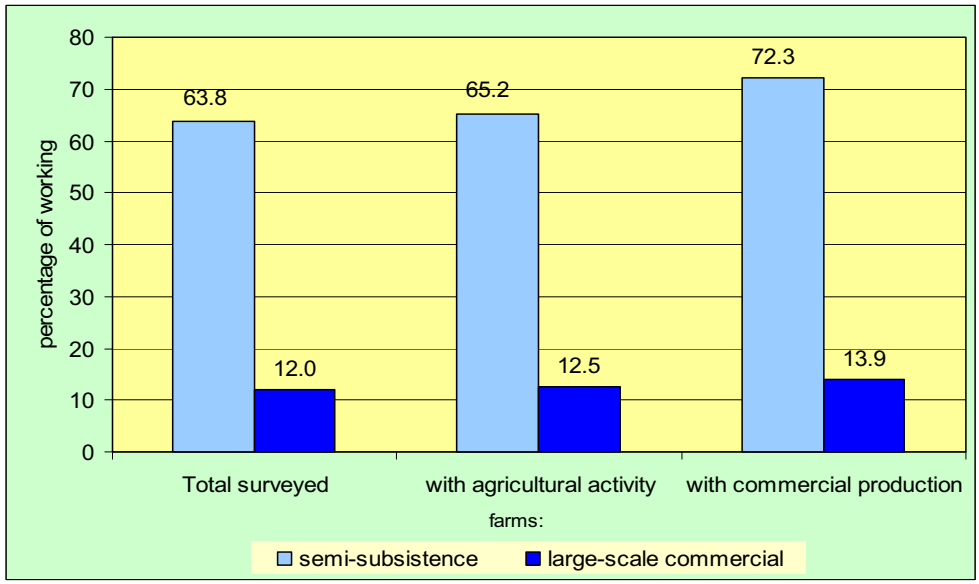
According to the research conducted in 2005 semi-subsistence entities comprised almost 64% of the total of private farms with more than 1 ha of AL, whereas 12% were large commercial entities.

Thus per 1 881 thousand entities in agriculture, roughly 1 200 thousand comprised entities whose scale of conducted agricultural activity did not allow the obtaining of a satisfying income from agricultural activity per one fully employed person, which may be assumed to be the average income of those employed in non-agricultural activities in general. Such farms, due to the level of agricultural income, are usually recognised as non-developmental and unable to compete. Simultaneously only approximately 220 thousand private farms comprised the group of large commercial entities, i.e. whose scale of agricultural production predisposes towards the attaining of income from the work rendered

[178] Z. Adamowicz, Gospodarstwa rolne (Farms), [w:] Encyklopedia agrobiznesu (Encyclopaedia of agribusiness) , Fundacja Innowacja, Warszawa 1998, pp. 346-347.
[179] Despite certain conceptual differences, the terms individual and family farming (holding), are used interchangeably. cf. J. St. Zegar, Dochody w rolnictwie w okresie transformacji i integracji europejskiej, IAFE-NRI, Warsaw 2008

there in an amount at least equal to the average income outside agriculture, therefore able to compete on the market[180].

Figure 3.1. The proportion of semi-subsistence and large-scale commercial farms in the structures of private agriculture



Source: prepared on the basis of field research of the IAFE-NRI 2005.

From the point of view of the competitiveness of the national agriculture and its further improvement it is not the presence of the above-mentioned groups that is important, but how numerous they are, as their mutual ratio shows the condition of the whole sector[181]. Thus it needs to be recognised that the presence of a high number of semi-subsistence farms, the users of which will not decide to liquidate them, may threaten the competitiveness of the agricultural sector, as this situation slows the processes of the concentration and development of units which aim to strengthen their position on the market and improve their ability to compete, i.e. the large-scale commercial ones.

[180] B. Karwat-Woźniak, Możliwości rozwojowe chłopskiego rolnictwa na przykładzie gospodarstw wysokotowarowych (The developmental potential of peasant agriculture on the example of large-scale commercial farms), Report No. 10, IAFE-NRI, Warsaw 2005.
[181] A. Woś, Układy strukturalne w chłopskim..., op. cit.

3.2. The family situation and demographic profile of the semi-subsistence-holding population

The economic potential and possibilities, as well as the ability of the agricultural production entities to compete, are defined by several very different factors, which in the case of an individual holding should be expanded by the family situation of the use of the holding[182]. Regardless of the holding's function and changes to the priorities of the agricultural activity, the bond connecting the family and workplace was never completely severed, since the fundamental rules of mutual bonds, which include the regulations on taking over the holding or the nature of relations referring to the labour force, never changed[183].

3.2.1. The sizes of families

The usual users of individual agricultural holdings are multi-generation families[184]. This thesis is confirmed by the family situations of both semi-subsistence and large commercial entities. In 2005, in both cases, single-person families or childless marriages were rare, but their percentage in the group of semi-subsistence farms was three times as high as in the case of large commercial entities (17% to 6%). Full families, i.e. a minimum of two generations (both parents and children) composed almost 65% of the users of semi-subsistence entities and almost 84% in the group of large commercial entities. In consequence, in 2005 the household of a user of a semi-subsistence farm had an average of 3.9 people, which was approximately 26% lower than the family of the user of a large commercial farm (4.9 people).

In recent years, certain transformations have taken place in the family situation of both the populations from non-competitive holdings and those with competitive abilities. They were expressed by a drop in the proportion of single-person families and a growth in the percentage of two-generation families. Although the general trends of these transformations were similar, their impact on individual holding categories was different. These distinctions found reflection in the pace of family-size reduction in comparable holding groups. For example, during the years 2000-2005, the average size of a large commercial farm family was practically stable, with an average of approximately 4.9 people.

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[182] A. Woś, Rolnictwo polskie 1945-2000. Porównawcza analiza systemowa, IERiGŻ, Warsaw 2000.
[183] A. Sikorska, Gospodarstwa socjalne w strukturze społeczno-ekonomicznej wsi, Studia i Monografie, v. 117, IAFE, Warsaw 2003.
[184] A. Sikorska, Struktura społeczno-demograficzna i wykształcenie ludności wiejskiej, Studia i Monografie, v. 87, IAFE-NRI, Warsaw 1999.

However, there were changes recorded in the case of semi-subsistence farm families, as their average numbers reduced from 4.1 to 3.9 people, i.e. by 5%. The consequence of these trends was the growth in the gap in family numbers between the compared holdings. In 2000, a statistical family utilising a semi-subsistence farm was almost 20% smaller than large-commercial-farm families; the analogical indicator was higher by almost 5 percentage points five years later.

3.2.2. The demographic structure of the population

In relation to each population group, the demographic structure, particularly according to age, is a significant factor in conditioning their economic activeness. It usually has strong effect in deciding on the relations between the supporters and the supported, as well as between the vocationally active and the passive[185].

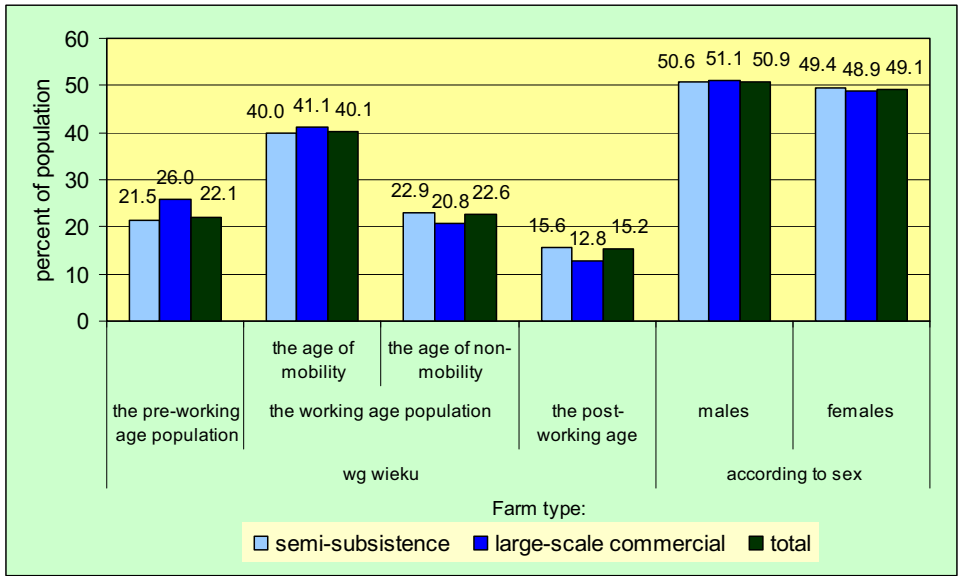
The comparison of the age structure of people from semi-subsistence farms with analogical data from large commercial units also indicates certain differences among the discussed categories of entities operating in the area of agricultural production. However, it should be noted that in general, the distinctions in the population division according to age among the selected holding groups were relatively low (Fig. 3.2.), while the transformation trends were similar in most cases[186]. The analysis of the age structure of the selected population groups showed that in 2005, much like in previous years, the working age population composed the decisively dominating group in both populations. Irrespective of the category of the farm, the persons in the period of statutory vocational activity comprised almost two thirds of the general population.

This does not change the fact that family members from semi-subsistence farms were relatively older than the people from large commercial units. Based on the questionnaires, it was determined that in 2005 almost 16% of the semi-subsistence farm population was of the age of post-working (among the general agricultural population - over 15%), while the parallel percentage in large commercial farms was less than 13%. Also in the case of people of non-mobility working age, a relatively higher number was present in the population from semi-subsistence farms (approximately 23%) than that of large commercial farms (almost 21%). In relation to the mobile working age population, the distinctions were practically not present, while the proportion of the people of this age in both groups was approximately 40%. Simultaneously, semi-subsistence farms were home to a smaller number of pre-working age people. Their propor-

[185] A. Sikorska, Zmiany w strukturze społeczno-ekonomicznej ludności niechłopskiej w okresie transformacji ustrojowej, Raport nr 5, IAFE-NRI, Warsaw 2005.
[186] B. Karwat-Woźniak, P. Chmieliński, Highly commercial farms..., op. cit..

tion in the population from semi-subsistence entities was almost 22%, while in the group of large commercial farms it was 26%.

Figure 3.2. Structure of the population according to age* and gender in selected groups of individual holdings



* Economic age groups according to the Central Statistical Office: the pre-working age population – persons aged 17 or under; the working age population – women aged 18-59 and men aged 18-64; the post-working age population – women aged 60 or over and men aged 65 or over. The working age population was subdivided into two groups: the age of mobility population (younger working age population) – persons aged 18-44 – and age of non-mobility population (older working age population) – women aged 45-59 and men aged 45-64.
Source: Created on the basis of the IAFE-NRI 2005 questionnaire.

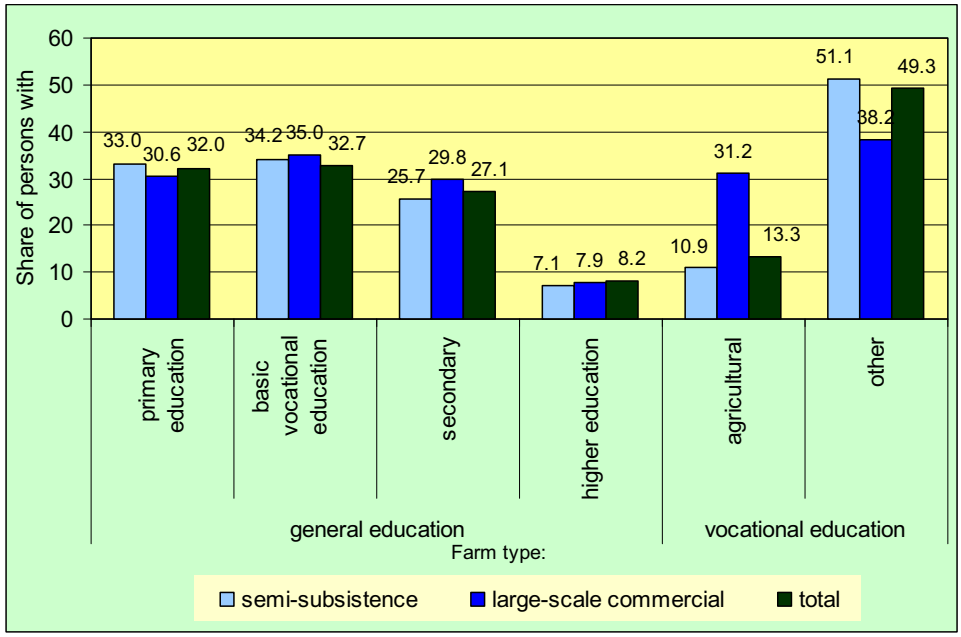
During the analysis of the population structure according to gender, it was established that the correlations between the numbers of females and males were very similar. These profiles involved both the compared groups; although the proportion of females was somewhat lower than the proportion of males (49% to 51%).

3.3. The education level of the population

Despite the fact that the demographic structure of people associated with the compared entity groups was similar, the population from semi-subsistence farms had a slightly lower level of education in comparison to the large commercial entity population (Fig. 3.3.). In comparison to the large commercial entity population, the number of secondary and vocational school (25.7% to

29.8%) and higher academy (7.1% to 7.9%) graduates from semi-subsistence farms was relatively low, while the proportion of people with general education at the statutory, i.e. elementary or middle (33.0% to 30.6%) and fundamental (34.2% to 35.0%), level was relatively higher.

Figure 3.3. The education of people* from selected agricultural holdings



* Recognises people aged 15 and up.

Source: Created on the basis of the IAFE-NRI 2005 questionnaire.

In each of the distinguished categories, the most frequent orientation of education was to obtain non-agricultural qualifications. However, the proportion of people with such education in the semi-subsistence farm population was significantly higher than among those from large commercial farms (51.1% to 38.2%), and due to this, the proportion of people with agricultural education in semi-subsistence entities was three times as low as in large commercial farms (10.9% to 31.2%).

The differences in the level and orientation of the education of people from semi-subsistence and large commercial entities are an expression of the process of rationalising mutual relations between the functions of the agricultural holding and the vocational attitudes of its users.

3.4. The demographic structure and level of gross enrolment of people working in agricultural activity

The socio-demographic features of the people living in families with a farm user are not identical to the features of the people working in agricultural activity, although a family farm is a specific place of work, as it functions mainly on the basis of the work of the user and the members of the user's family[187]. Simultaneously one of its tasks is to employ all the persons in the family, as well as to provide the conditions for the preservation of the work environment and the workspace and the people connected with it, so it fulfils the generational and social purposes[188]. For this reason and due to the particular features of the productive processes in the agricultural activity, a characteristic attribute is a certain inconstancy in the participation of private persons in the work on the farm[189]. Thus due to the needs of the farm (especially re the scale of production) and the features of an agricultural family, the need for and the scope of work performed for the conducted agricultural production varies. As a consequence, some people perform activities of an ancillary nature, limited in terms of time scope, especially if they do not connect their professional activities with the employment on the family farm[190].

In the analyses of the conditioning of the efficient functioning of farms in the conditions of increasing competition, a particularly often-raised issue is the level of education of the employed in agricultural activities, as with economic development and technological changes comes an increase in the significance of knowledge in the process of production, the main indicator of which is education[191]. As a consequence the economic strength of private farms and their ability to compete to an increasingly high extent is determined by the level of gross enrolment of the people working in agricultural operations.

Comparison of the demographic features of the people employed in the large-scale commercial farms with the analogous data of large-scale commercial

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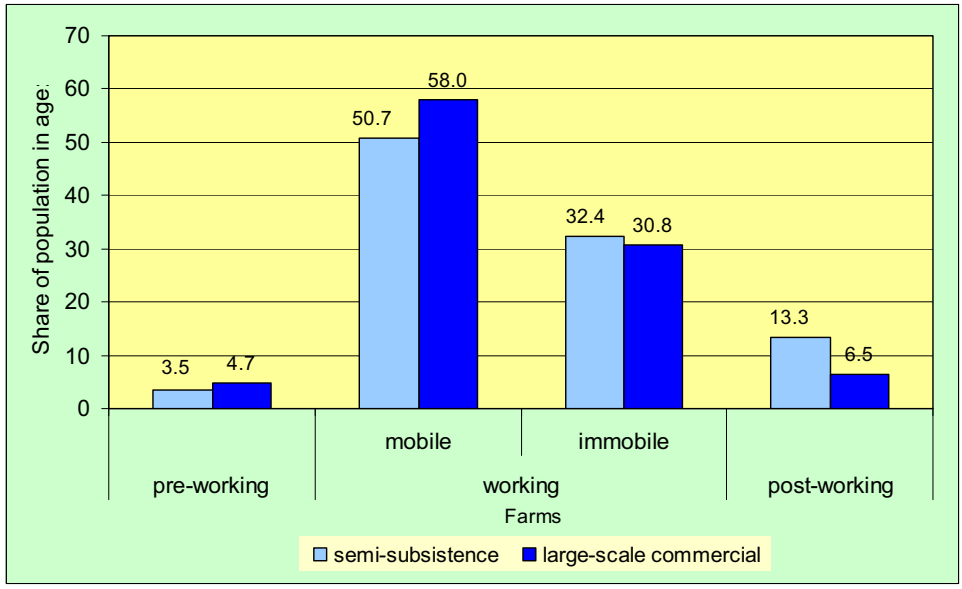
[187] F. Tomczak, Gospodarstwo rodzinne (A family farm), [in:] Encyklopedia agrobiznesu Encyclopaedia of agrobusiness), Fundacja Innowacja, Warsaw 1998.
[188] A. Woś, Rolnictwo polskie.., op. cit.
[189] A. Leopold, Praca w rolnictwie (Work in agriculture), [in:] Gospodarstwo rolnicze wobec wymogów współczesnego rynku i Unii Europejskiej (The farm in view of the requirements of the modern market and the European Union), Warsaw University of Life Sciences – SGGW, Warsaw 1997.
[190] A. Woś, Układy strukturalne w chłopskim..., op. cit.
[191] G.M.D. Gall, J. Gall J.W. Borg, Educational research: An introduction, Allyn&Bacon, Boston 2003.

entities indicates that the workforce of the semi-subsistence entities was demographically older (Fig. 3. 4).

Figure 3.4. The structure of persons employed at a family farm by age*

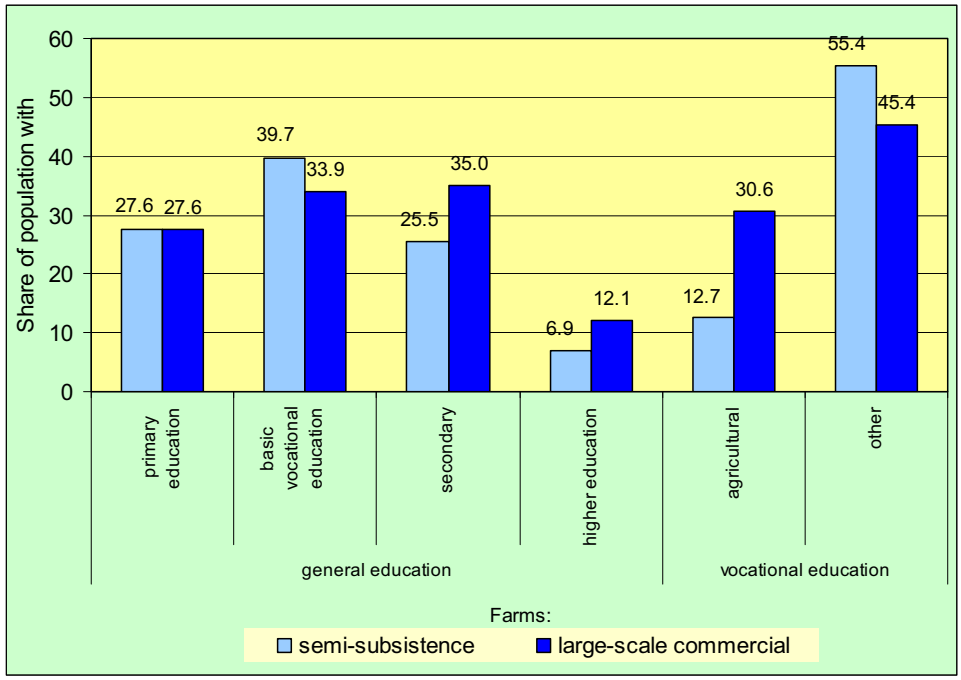


*People at the age of 15 or more.
Source: prepared on the basis of a survey of the IAFE-NRI 2005.

In both the compared categories of family farms the vast majority of the employed were people in the statutory period of professional activity, while in the class of the employed at semi-subsistence entities less than at the large-scale commercial entities were people of working age (83% compared to 89%), and simultaneously people of younger working age less frequently worked (51% compared to 58%). Furthermore, in the first of the mentioned classes there were twice as many people of post-working age, and these amounted to over 13% of all the employed in agricultural operations conducted at semi-subsistence farms.

The differences in the demographic features of the employed in the selected groups of farms were not limited to their structure in terms of age, but also involved their division in terms of gender. In 2005, similar as before, the level of feminisation of the working population in the agricultural activity was clearly higher in the semi-subsistence farms than in the large-scale commercial ones (54% compared to 49%). This situation was preconditioned by both the worse economic conditions and the lower level of technical equipment at large-scale commercial than at semi-subsistence farms.

Figure 3.5. The structure of education of people* employed in selected categories of family farms



* at the age of 15 or more.

Source: prepared on the basis of a survey of the IAFE-NRI 2005.

The differences in the participation of women among the employed in semi-subsistence and large-scale commercial farms proves the dissimilarities in the advancement of the processes of rationalisation in the organisation of work and the professionalisation of work relations in the analysed groups of households.

The gathered data indicates that the population working in semi-subsistence farms showed a lower level of education than those employed in large-scale commercial entities. This involved both general education and professional qualifications. This does not change the fact that in general the people employed at the semi-subsistence units were educated above the statutorily required level equally as often as the people working on the large-scale commercial entities. In 2005 the people who had finished education at the statutorily required level in both categories of farms comprised around 28% (Fig. 3.5). Simultaneously in the group of people working on semi-subsistence farms there were less – in comparison to the population from large-scale commercial entities

– graduates of secondary and post-secondary schools (26% compared to 35%) and higher (7% compared to 12%), while slightly greater was the participation of people with general vocational education (40% compared to 34%) and basic vocational education (34% compared to 35%).

As far as professional education is concerned, among the employed in each of the selected categories, most often the direction of education was to gain non-agricultural qualifications. In the population employed in semi-subsistence farms, the percentage of people with such education was clearly higher, though, than among people from large-scale commercial farms (55% compared to 45%). Simultaneously, among those working in semi-subsistence units there was a lower proportion of people who had graduated from agricultural schools. The differences in the level of that percentage were significant, and the people with agricultural school qualifications comprised nearly 13% in the population working on semi-subsistence entities and around 31% among the population employed at the large-scale commercial units.

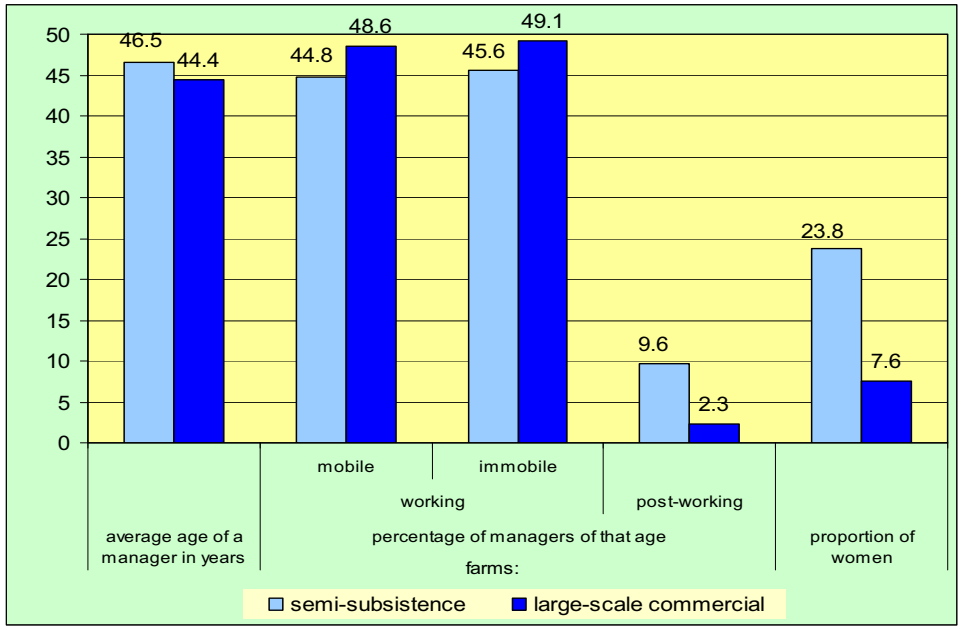
The differences presented above in the professional education of the population employed in the selected categories of farms indicate the possibility of forming the economic power of their work environment, as well as the increase in their non-agricultural professional activity and the chance of reduction in employment in agricultural activity and the number of people redundant at the farm.

3.5. The demographic profile and scholastic level of holdings managers

With economic development, the quality of labour resources is becoming the factor deciding upon the effectiveness or lack thereof of the conducted agricultural activity[192]. The profiles of the people managing[193] the agricultural activity are particularly significant, since they are the ones making the strategic decisions which condition the nature and future of the holding[194].

[192] G.M.D. J.P. & R. Gall,W. Borg, Educational research: An introduction, Allyn&Bacon, Boston 2003.
[193] Names of supervisor, administrator, manager and farmer are used interchangeable.
[194] B. Klepacki, Znaczenie wiedzy i wykształcenia w rozwoju rolnictwa, Zagadnienia Ekonomiczne nr 2, Uniwersytet Warmińsko-Mazurski, Olsztyn 2004.

Figure 3.6. The structure of people managing a family farm by age and gender



Source: prepared on the basis of a survey of the IAFE-NRI 2005.

The data on the ages of holding managers generally show that the differences among the distinguished holding categories in this area were relatively small. This does not change the fact that the people managing semi-subsistence farms were relatively older than the managers of commercial units. These differences were expressed mainly in the four-times-as-high (9.6% to 2.3%) percentage of post-working age managers and lower percentage (44.8% to 48.6%) of people up to 44 years of age, i.e. of mobile working age. In consequence, the average age of a manager of a semi-subsistence farm was 46.5 years, which was approximately 5% higher than that of a commercial entity manager (44.4). It should also be noted that the level of feminisation in the group of semi-subsistence farm managers was higher. The percentage of females among the managers of semi-subsistence entities was over three times as high as that of the commercial unit managers, at 23.8%.

Much like in the case of the total population, there is also a certain gap among farmers on the education level depending on the holding being in the group of semi-subsistence or large commercial entities. The managers of semi-subsistence farms were slightly less educated then the managers of commercial units. This was mainly shown by the higher percentage of people ending their education at the statutory level, particularly the lower proportion of managers

with secondary education (Tab. 3.1). 28% of semi-subsistence managers had a general education at the statutory level, while the analogical percentage for managers of large commercial farms was 18.8%. In both groups of managers, the most popular was primary education (approximately 47% of the people).

There were also no differences in the level of the percentage of managers with higher education, which was approximately 5%. The largest disproportions were in the field of secondary education. This level of education was held by 20% of semi-subsistence and 29% of large commercial farmers.

Table 3.1. The education of managers from selected holdings groups

Holdings	Percentage of people with education					
	general				vocational	
	statutory	elementary	secon-dary	higher	agricul-tural	non- agri-cultural
semi-subsistence	27.9	47.0	20.1	5.0	19.6	52.1
large commercial	18.8	46.6	28.9	4.9	52.1	30.3

Source: prepared on the basis of a survey of the IAFE-NRI 2005.

Much like in the case of the total population, in the case of the managers, there is also a tendency to obtain non-agricultural qualifications. This is proven by the orientations of the vocational specialisations of the managers from the selected holding groups. Although the farmers from semi-subsistence entities had non-agricultural education most frequently (52%), the proportion of people with non-agricultural education among the managers of other commercial farms was also significant, at 30%. Simultaneously, among managers of semi-subsistence farms, the proportion of people with agricultural education was over 2.5 times as low as that of the managers of other commercial farms, at 20%.

3.6. The vocational activeness of the population

The family model of agricultural farming, which dominates Polish agriculture, results in the involvement of people inside the family members in the work within the agricultural holding, which causes its composition to be the main condition for the profile of the population employed in agricultural activity[195]. Simultaneously, along with the development of the non-agricultural labour market, the vocational aspirations and life plans of individual people have become a significant determinant. The competition of gainful employment in the selection of the main employment location – within or outside of the holding –

[195] A. Sikorska, Gospodarstwa socjalne.., op. cit.

affected the growth of the significance of the economic condition of individual holdings with the making of such decisions. In consequence, not only the family situation, but also the labour possibilities and primarily the economic profile of individual holdings condition the allocation of vocational activeness[196].

The population connected with agriculture is characterised by higher professional activity than that of other inhabitants of the country[197], and one can simultaneously observe the significant incidence of double professions among agricultural families[198]. This is also proved by the study of the professional activity of population from selected categories of family farms, which indicates that in 2005 approximately 73% of people at the age of 15 or more from semi-subsistence farms and 79% of family members from large-scale commercial entities had been active on the labour market.

Differences in the scale of conducted agricultural activity of the selected categories of farms are reflected by the differences in the structural division by the place of work (Figure 3. 8).

In each group of farms the largest subgroup was that of people employed exclusively in their own agricultural activity. In 2005 in such activity worked almost half the total employed members of families from semi-subsistence farms and this proportion was by nearly 26 percentage points lower than among those working on the large-scale commercial farms. On the other hand in the working population from semi-subsistence units clearly higher than in the large-scale commercial ones was the proportion of those combining work in the family farm and outside it (34% compared to 13%) and those employed solely outside agriculture (13% compared to 5%).

3.6.1. Work in own agricultural holdings

Due to the specificity of agricultural production (e.g. the significant seasonality of work) engagement of members of an agricultural unit in the conducted agricultural activity is common. This involved both of the analysed categories of farms. In 2005 around 77-78% of people at the age of fifteen or more, both from

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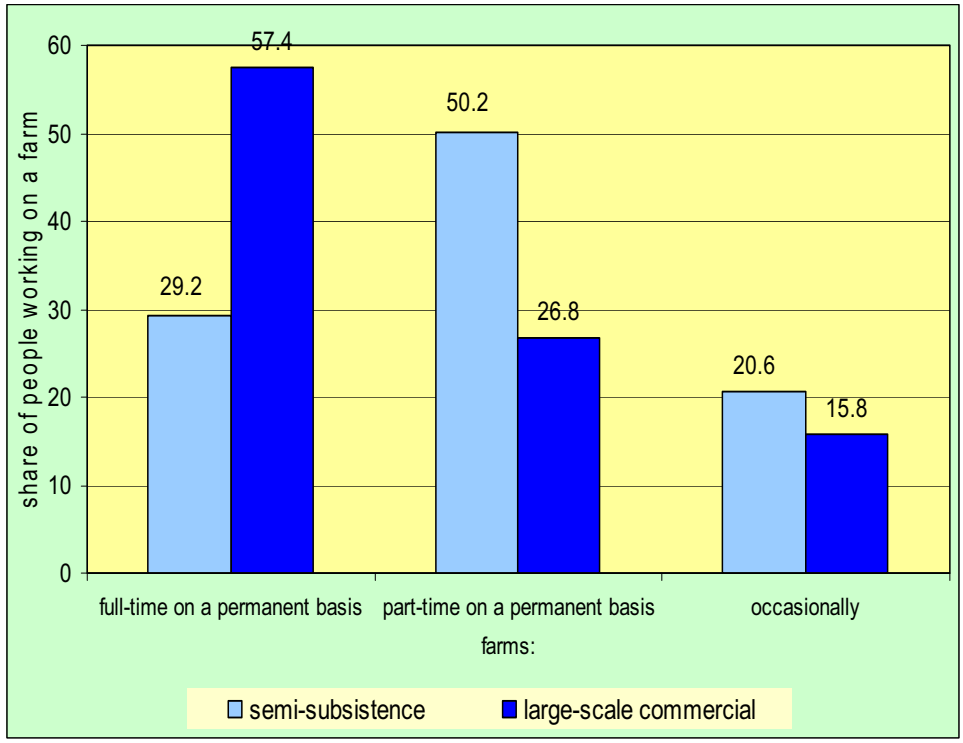
[196] A. Sikorska, op.cit.

[197] J. St. Zegar, Źródła utrzymania rodzin związanych z rolnictwem (The sources of maintenance of families connected with agriculture), Studia i Monografie, vol. 133, IAFE-NRI, Warsaw 2006.

[198] A. Kaleta, Wielozawodowość na obszarach wiejskich – perspektywa globalizacji (Multiprofessionalism in rural areas – the perspective of globalisation), [in:] Polska wieś 2025, Fundusz Współpracy, Warsaw 2005.

the families cultivating semi-subsistence and large-scale commercial farms, contributed labour input to the conducted agricultural activity.

Figure 3.7. The structure of people working in agricultural activity by working time*



* 100 was assumed to be the total number of people at the age of 15 or more from a given category of farms.
Source: prepared on the basis of a survey of the IAFE-NRI 2005.

The survey data indicates that in 2005 for nearly 66% of people contributing work to a semi-subsistence farm, employment there was their sole place of professional activity, whereas this proportion was around 18% lower among those employed at the large-scale commercial units. This confirms the differences in the significance of work outside the analysed categories of family farms.

Detailed analysis of data on the volume of engagement of private persons in work on agricultural production indicates that between the compared categories of family farms there are differences in the structure of the population working in agricultural activity with regard to the amount of work contributed (Fig. 3. 7).

In 2005 a little more than 29% of people working on semi-subsistence farms were employed there full-time. This proportion was approximately twice

as low among those employed at large-scale commercial market farms, which amounted to more than 57%. However, in the population working on semi-subsistence farms twice as high as in the case of large-scale commercial ones was the proportion of working on a permanent basis, but part-time (50% compared to 27%). There were smaller differences between the sizes of the group of people working occasionally (21% compared to 16%).

3.6.2. The professional activities of the population from the non-agricultural labour market

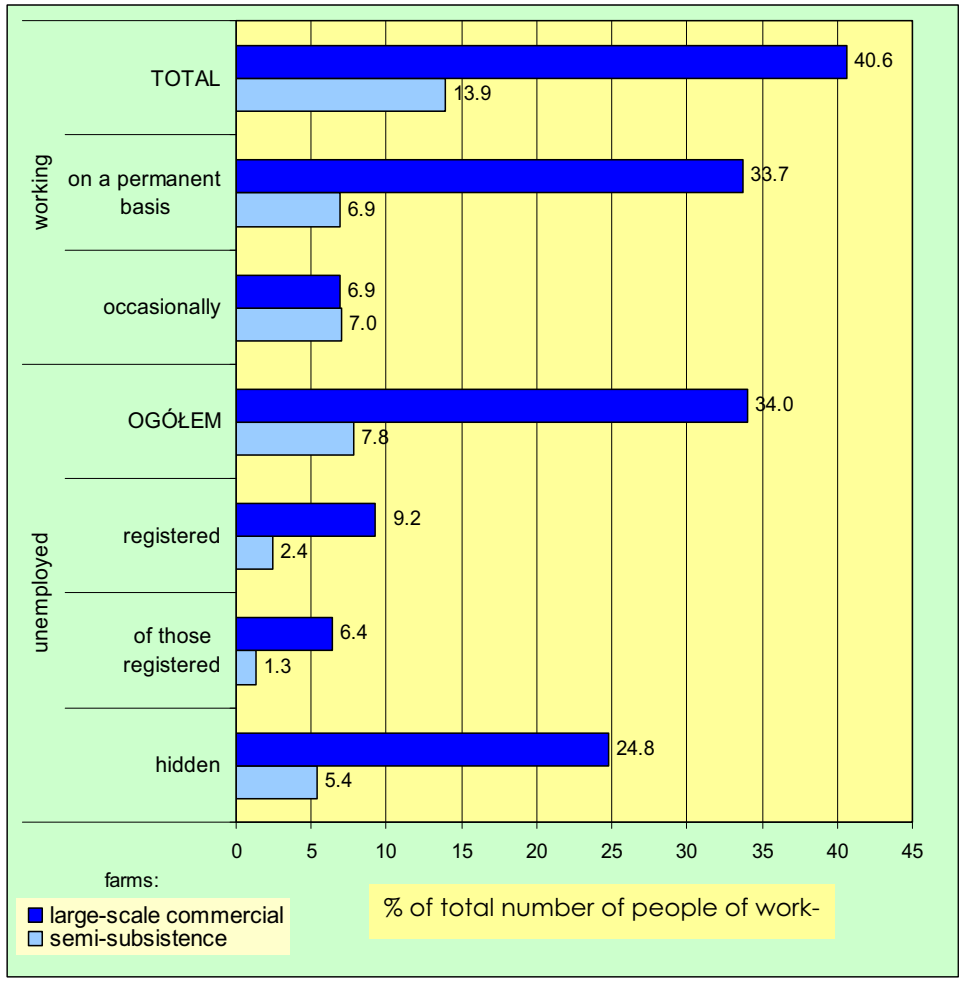
The relatively lower engagement of the population from semi-subsistence units in agricultural production is reflected in their professional activity outside the used farms. Most of the people from this category of entities were on the non-agricultural labour market (Fig. 3.8).

The conducted research indicates that around 41% of people in working age found employment outside their own farm and that 34% were working on a permanent basis. Furthermore, over 9% actively sought employment outside their own agricultural activity. The percentage of people oriented towards work outside their own farm would be larger if we take into account the people who, due to the lack of possibility of employment outside agriculture, work on a farm, although their work is of insignificant usefulness from the point of view of the conducted agricultural activity. In such a situation are around 25% of people of working age in families cultivating semi-subsistence farms. This indicator determines the scale of hidden unemployment in this category of entities.

Significantly lower was employment outside agriculture of people from large-scale commercial farms. Approximately 7% of people were permanently employed outside the farm and the same number occasionally worked outside agriculture. Lower was also the overt unemployment (2%), including the registered (approximately 1%), and most of all the hidden unemployment (5%).

It also needs to be added that the group of professionally-inactive people, i.e. those who did not seek paid work and did not contribute work to the conducted agricultural activity, in both the compared categories of farms, was similar and amounted to nearly 9%.

Figure 3.8. Activity on the non-agricultural labour market of the population of working age* from farms in the selected groups of farms



* 100 was assumed to be the total number of people at the age of 15 or more from a given category of farms.
Source: prepared on the basis of a survey of the IAFE-NRI 2005.

To sum up it, needs to be emphasised that although the pressure on the labour market from people from semi-subsistence farms was more than three times greater than in the case of the population related to large-scale commercial units, simultaneously attention is drawn by the scale of redundant people from the point of view of the conducted agricultural production. Such people concentrate most of all in the first of the mentioned categories of entities. This means

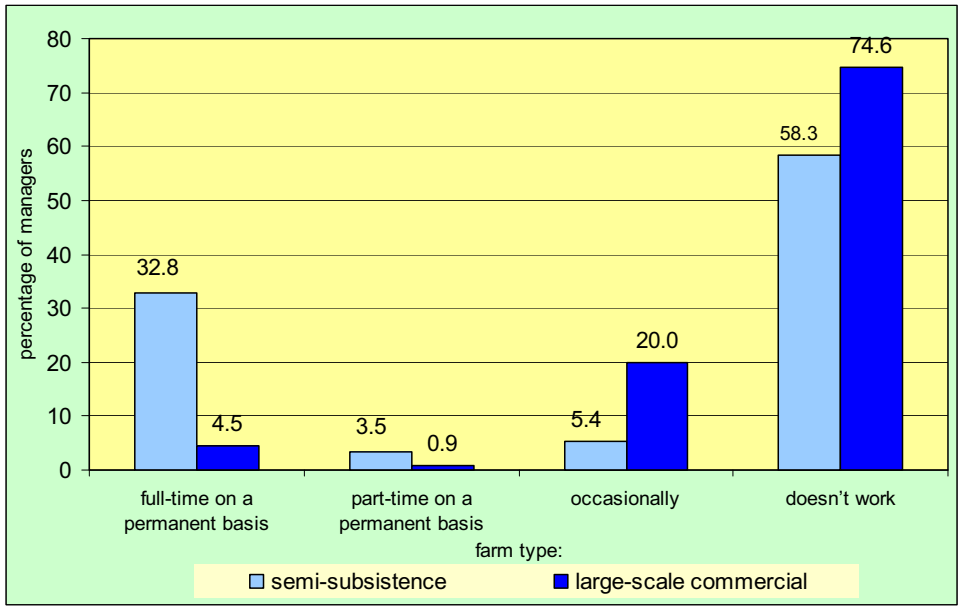
that family agriculture, especially on semi-subsistence farms, mainly fulfil social functions in relation to the people unable to find paid work.

3.7. The vocational activity of farm managers

From the perspective of the future of semi-subsistence farms, especially the character of the processes of the rationalisation of the possessed productive assets, the information concerning the allocation of economic activity of people managing agricultural activity is important.

The survey data indicates that managers of semi-subsistence farms much more often than people managing farms with a higher scale of production were active in the non-agricultural labour market. In 2005 approximately 42% of farmers from semi-subsistence entities were employed outside their own farms, while among those managing large-scale commercial farms the analogous proportion was much lower and amounted to approximately 25%.

Figure 3.9. Farm managers by the character of non-agricultural employment



Source: prepared on the basis of a survey of the IAFE-NRI 2005.

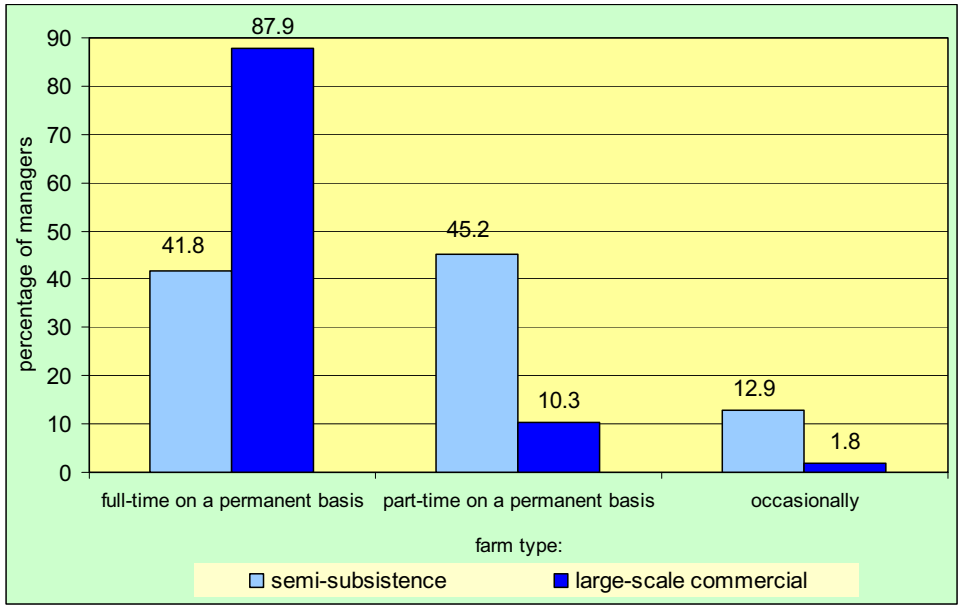
Analysis of the working time of persons managing individual categories of family farms indicates that greater differences than in the popularity of earning among farmers were present in the nature of their employment. In the group

of those managing semi-subsistence farms it was mainly permanent full-time employment. Thus employed were approximately 33% of those managing semi-subsistence entities, almost 4% of them working on a permanent basis, but part-time, and occasionally – a little more than 5%.

Among the entirety of farmers from large-scale commercial farms, the scale of earnings was not only lower, but also mainly occurred in part- time work. In 2005 the proportion of those working full-time on a permanent basis in non-agricultural activity amounted to less than 5% of all those managing farms, and approximately 1% earned on a permanent, but less than full-time, basis, whereas as many as 20% were occasionally employed outside agriculture.

In the identification of perspectives for semi-subsistence family farms from the point of view of their agricultural production pro-effectiveness, or their disappearance, especially important is their role as a place of employment for their managers. In the case of determining the significance of the conducted agricultural activity in the location of the professional activity of those working, the time of their work in agricultural production has been used. The applying of this criterion allowed the isolation of entities which comprised the basic place of professional activity for their users.

Figure 3.10. The structure of managers at the age of statutory professional activity of farms by the time of work on managing agricultural activity



Source: prepared on the basis of field research of the IAFE-NRI 2005.

From the point of view of the future of farms, particularly important is the involvement in the productive activity of managers of working age. It can be supposed that managers at the age of statutory professional activity will seek to instigate actions aiming to increase the scale of the conducted agricultural activity and the increase in the productive potential of their own work environment.

Analysis of the surveyed data indicates that most of the persons managing semi-subsistence farms in working age, similar to the members of their families, did not combine their professional activity with work in agricultural production (Fig. 3.10). In 2005 only just under 42% of the users of semi-subsistence entities were employed there full-time. Simultaneously more than 45% of those managing worked on a permanent basis, but part-time, and occasionally – almost 13%.

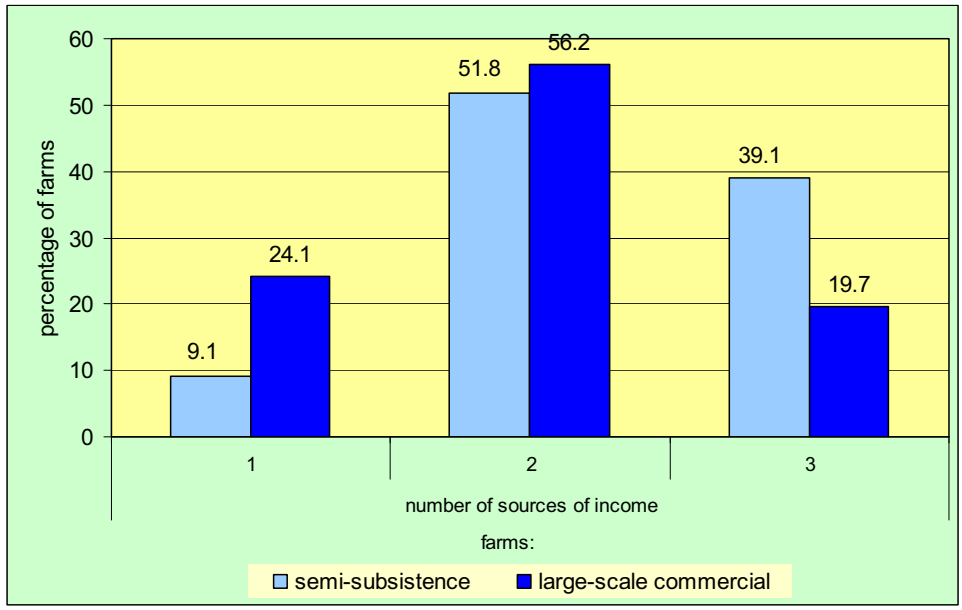
For the sake of comparison, among the managers of large-scale commercial farms, there were 88% of people working full-time on a permanent basis in agricultural activity, and approximately 10% on a permanent basis, but on a part-time basis. Incidentally there were situations where the manager of a large-scale commercial entity handled the operated production seasonally or on an irregular basis. In such limited time worked only less than 2% of managers of large-scale commercial entities.

3.8. The sources of the means of support for families running semi-subsistence farms

The differences in the placement of the economic activity of people from selected categories of farms are reflected not only in the multitude of sources of gaining income (Fig. 3. 11), but most of all in the fundamental source of their support (Fig. 3. 12).

The empirical data indicates that regardless of the category of the used farm, definitely the most numerous group was that of families with more than one source of income. In 2005 only approximately 9% of families from semi-subsistence farms drew the entirety of their income from the conducted agricultural activity. Simultaneously more than 39% of families from semi-subsistence entities had all kinds of income (agriculture, wages, social benefits, mainly old-age and disability pensions). Among the families cultivating large-scale commercial entities the proportion of those with only one source of monetary income was almost 2.5-times lower (amounting to slightly more than 24%), and the percentage of families gaining income from all three sources was almost twice as low.

Figure 3.11. The structure of semi-subsistence and large-scale commercial farms by the number of sources of financial income



Source: Prepared on the basis of a survey of the IAFE-NRI 2005.

The differences in the allocation of the economic activity of the population from the selected holding category find reflection in the multiple sources of income, primarily in the basic source of their support. The empirical data indicates that, regardless of the category of the utilised holding, families with more than one source of income compose the decisive majority. Only approximately 9% of the families from semi-subsistence farms gain all of their income from the agricultural holdings, while in the case of commercial farms, this proportion is approximately 24% (Tab. 3.2).

However, the most evidence on the advancement of the process of economic diversification of people from the distinguished entity categories is provided by the role of income from the utilised holdings. Only approximately 22% of the families with semi-subsistence farms are supported mainly from agricultural activity, while the other are mainly supported from gainful employment outside of the holding (48%), as well as retirement and disability pensions (30%). Meanwhile, the large commercial farm families gain all their income mainly from agriculture.

Table 3.2. Structure of semi-subsistence and commercial farms according to the number and main source of income

Holdings	Holding percentage						
	1	2	3	supported mainly by			
	sources of income			gainful employment		disability and retirement pensions	holdings
				total	including hired		
	row total = 100			row total (without column 5) = 100			
	1	2	3	4	5	6	7
semi-subsistence	9.1	51.9	39.1	47.8	42.2	30.3	22.1
large commercial	24.1	56.2	19.7	-	-	-	100.0

Source: Own elaboration on the basis of the IAFE-NRI 2005 survey.

The differences in allocating the economic activity of the population from the selected holding categories are reflected not only in the multitude of income sources, but also in the significance of income from the holding in the total budget of agricultural families (Tab. 3.3).

Table 3.3. Structure of material income of families from selected holding groups

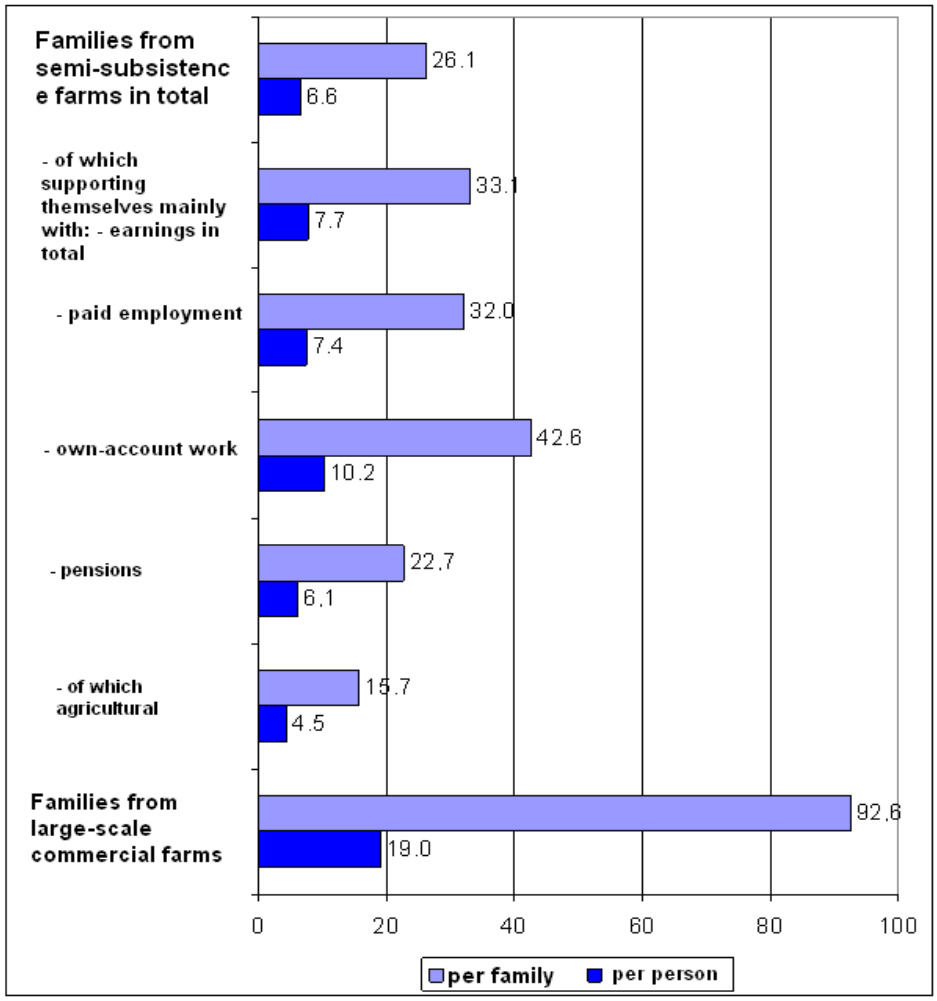
Holding type	Proportion of income from				
	gainful employment	disability and retirement pensions	holdings	Including	
				subsidies	activity based on the holding property *
	row total = 100				
semi-subsistence	48.1	28.6	23.3	9.8	0.5
large commercial	6.1	7.2	86.7	15.3	0.2

*This group covers e.g. income from the following services: mechanical, agrotourism, others provided on the basis of the holding property.

Source: Created on the basis of IAFE-NRI 2005 field surveys.

Considering the amount of obtained income, the economic status of semi-subsistence farm families was mainly tied to gainful employment. In 2005, almost half (slightly over 48%) of the total income of households with a user of a semi-subsistence entity came from employment, while among the rest of the families from large commercial farms, employment composed only 6% of the total budget. The visible separation of the method of gaining means of support is also documented in data concerning the significance of social benefits. In semi-subsistence farms, their proportion in the total income amounted to almost 29%, with only slightly over 7% in the case of large commercial farms.

Figure 3.12. The average annual income of families by categories of family farms and predominant source of support



Source: prepared on the basis of field research of the IAFE-NRI 2005.

However, the advancement of the diversification process of economic activity of people from the selected categories of entities is shown by the role of income from the used farms. In 2005 the proportion of such kinds of income in the total size of the monetary budgets of families from semi-subsistence farms amounted to a slightly more than 23%, whereas among the families from large-scale commercial entities nearly 87%.

Analysing the results of field research on the differentiation of the level of income of families from the selected categories of market farms it needs to be recognised that in a relatively worse condition were the families cultivating semi-subsistence entities (Fig. 3.12). Their average income per family amounted to PLN 26.1 thousand; per one person it was PLN 6.6 thousand. Thus it was at a level almost 3.5-times lower than the average among families with large-scale commercial farms, among which the analogous indicators were respectively PLN 92.6 and PLN 19.0 thousand.

Certain discrimination in the income situation of families from semi-subsistence farms was visible, regardless of the predominant source of their income. The lowest disproportions in the income situation between the analysed categories of farms occurred in the case of the fundamental source of support of a family from semi-subsistence farms being the income from own-account business enterprise.

The surveyed data shows that in 2005 the average annual total income per family from semi-subsistence farms, whose predominant source of support was income from own-account business enterprise, amounted to PLN 42.6 thousand, and per one person PLN 10.2 thousand. Thus these amounts were almost twice as low as the analogous indicators achieved by the households from semi-subsistence entities.However, the relatively largest discrepancies between the compared groups were found in the group of families supporting themselves mainly from income gained from the farm. The average annual total income of families supporting themselves mainly from semi-subsistence farms amounted to PLN 15.7 thousand, more than five times lower than in the group of large-scale commercial farms. Comparing the average total income per person in the families from the analysed categories of family farms, the disproportions in this respect are lower but still significant, i.e. by four times.

Ignoring isolated cases, where in a group of semi-subsistence farms temporarily there were entities only in their starting phase (these can be estimated at approximately 5%), in all the other cases this indicated the difficult financial situation of the family. Extrapolating the gathered source data from the entirety of private farms, it can be assumed that 220 thousand were entities providing income at the level of minimum subsistence.

Summary

This paper comprises three separate chapters. The first presents contemporary theories in the field of human and social capital. It describes the most commonly-used definitions, research methods, and the varying approaches to the concept of human capital in economic literature.

However, irrespective of the differences in views regarding the manner of defining and the methods of evaluating social factors in economic theory, the importance of human capital quality as a driver of progress in economic development is increasingly recognised. Not only does it result from the shrinking production resources, but also from the empirically-recorded development path of relatively the most prosperous countries.

The second chapter constitutes an attempt to present the determinants of human capital quality in rural areas. Particular emphasis is laid on the level of education of various groups of the rural population, the changes occurring in this respect, and the access to the infrastructure of institutions which have the greatest influence on improving human capital quality. It is documented that, even though recent decades have brought favourable changes in the quality of human capital in rural areas, the disproportions between urban and rural areas are still extant. The rural population continues to be at a disadvantage in terms of access to many educational institutions, which are a condition of human capital development.

The third and last chapter in the paper is aimed at documenting that the population features (age, sex, education level) and the location of economic activity, constitute significant elements that could impede or stimulate the processes of diversifying economic activity and transforming the structure of Polish agriculture towards greater effectiveness. These changes relate to people leaving farming families to pursue non-agricultural activities and to the processes of land concentration and the dwindling number of farms.

The study documented that although the demographic features of the population from semi-subsistence farms do not differ significantly from the features of the population from large-scale commercial entities, the processes of ageing are somewhat more advanced. Simultaneously the people from families in the semi-subsistence farms were characterised by a lower level of gross enrolment, especially in relation to agricultural education, than in the case of the population from large-scale commercial entities. These trends were particularly visible in the case of farm managers. Furthermore, the managers of semi-subsistence entities were characterised not only by a higher level of feminisation, but also by more advanced age.

The data on the economic activity of the population connected with family farms indicates that the population in this category of entities was characterised

by a relatively high professional activity. In 2005 in this group the factor of activity amounted to 73% and was only 5 percentage points lower than in the group of fifteen-year-old or older members of families active on the labour market.

The analysis shows that the differences in the scale of the conducted agricultural activity of the isolated categories of farms found reflection in the differentiation in the structural division by the place of work. In each group of farms the largest subgroup was that of people employed solely in their own agricultural activity. In 2005 more than 56% of all the employed family members from semi-subsistence farms worked in such an area and this proportion was almost 26 percentage points lower than in the case of those working on large-scale commercial farms, while in the working population from semi-subsistence units the proportion of those combining work at the family farm and outside of it was clearly lower than in the case of the large-scale commercial units (30% compared to 13%) and those employed solely outside agriculture (13% compared to 5%).

A relatively lower involvement of the population from semi-subsistence units in agricultural production found reflection in their professional activity outside the used farm. Almost half the people of working age from semi-subsistence farms were employed in non-agricultural activity. Simultaneously 33% of people of working age from semi-subsistence farms were employed full-time on a permanent basis outside agriculture, and this proportion was almost three times higher than in the case of the population from large-scale commercial entities.

Although the pressure on the labour market from people from semi-subsistence units was significantly higher than in relation to the population from large-scale commercial farms, the unused resources of the workforce in this category need to be recognised as major. The people working on a farm, although the usefulness of their work is insignificant from the point view of the conducted agricultural activity, comprised approximately 25% of the entire population at working age from semi-subsistence farms.

The analysis of sources of support of families cultivating semi-subsistence farms most of all indicated the general division of that group into two subgroups – those supporting themselves mainly with: paid work outside agriculture (48%) and old-age and disability benefits (30%). Regardless of the relatively low scale of production and therefore income from agricultural activity, 22% of the families from semi-subsistence farms supported themselves mainly with the farm, whereas in most cases this was not the only source of income. Agriculture as the sole source of income characterised only 9% of all the families from semi-subsistence farms, and among the large-scale commercial ones the analogous indicator amounted to 24%. It became apparent, however, that regardless of the multitude of sources of income, the economic situation of families from large-

scale commercial entities was relatively worse. Their annual level of income per family and person amounted respectively to 28% and 35% of the average income of families from large-scale commercial entities.

Semi-subsistence farms functioning in the country are evolving with the change in generations. Based on the analysis of demographic features, the field of education, and the professional aspirations of the people related to them, especially farm managers, it can be assumed that over longer time periods a significant part of semi-subsistence farms will grow increasingly similar to the status of agricultural plots. Such trends are indicated by the plans of those managing the used agricultural property. The analysis indicates that every fifth user of a semi-subsistence entity has the intention of decreasing the area of cultivated land in the nearest future.

It can be assumed that the increase in the inclination to withdraw from the running of semi-subsistence farms will be influenced by the improvement in the situation on the labour market (an increase in demand for the workforce in non-agricultural sectors). From the perspective of pro-effectiveness transformations in agricultural structures, these changes will be beneficial, as the presence of a group of more than 1 million semi-subsistence farms weakens the competitiveness of the national agriculture.

On the basis of the characteristics of selected types of farms, and their connection with the characteristics of farming family members, the importance of human capital in rationalising agricultural structures should be emphasised. The collected material suggests that among people working on semi-subsistence farms there is a relatively large population group with low capabilities of taking up alternative economic activity.

This is evidenced by the fact that among the overall number of people working exclusively or primarily on semi-subsistence farms, women amounted to 41%, and post-working age people 26%. Therefore, the presented material indicates an urgent need to launch actions intended to improve human capital quality in rural areas.

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