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Leisure Time and Income. Some Evidence From Poland

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Abstract: Changes in time management reflect contemporary socio-economic trends. Indicators of the use of leisure time may be considered as unconventional measures of the quality of life. The structure of time budget, in addition to the structure of consumer spending, is also considered to be a full-fledged component of individual and social well-being. The analysis of the time budget of the population is therefore an interesting issue related to the problems of the living conditions of families in Poland. It is also a valuable source of information on the amount and management of time for work, household duties, education, recreation and rest.

The paper is aimed at analysing the time budget of the Polish population, with particular emphasis on leisure time and evaluation of changes that occurred in leisure time management during the period 2003/2004–2013. The authors attempt to assess the diversification of time devoted to leisure depending on the level of income among working people. The analysis was carried out on the basis of the Time Use Survey conducted by the Central Statistical Office of Poland.

Transformation in leisure time management has been identified during the analysed period. Namely, the pursuing of one's hobbies and abandoning of traditional media (television, radio) in favour of the Internet are becoming increasingly popular. The income level has a limited impact on time management and the observed dynamics of changes do not influence any changes in leisure time use in quintile groups.

Keywords: leisure time, time use survey, level of income

JEL codes: D10, C40

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1. Introduction

Leisure time is an interdisciplinary issue of interest to specialists in different fields, including economics. This mainly results from its immense role in social and economic processes. Leisure time is particularly valuable due to the fact that it may not be stored or produced in greater quantities.

Along with cash budget management, time budget management is an important aspect of human behaviour. Time budget and cash budget are interrelated. On the one hand, the level and management of cash budget affect the time budget, especially relations between time spent working and leisure time. On the other hand, decisions concerning the distribution of time budget determine the level and structure of expenditures (not only those related to leisure time) (Burlita, 2013: 77). Leisure time is also an important component of life quality and it has an influence on life satisfaction. It is the amount of time and the way it is spent that influence the quality of work performed, options of professional development, health, and daily well-being (Kwilecki, 2011: 9).

With the increasing pace of life nowadays, leisure time grows in significance. It provides opportunities for pursuing individual goals, helps realise one's ambitions, contributes to increased consumption and, in a broader perspective, stimulates economic development (Makówka, 2006: 41). Thanks to social and economic transformation, leisure time is no longer a privilege for the richest but it has become more common and egalitarian, thus earning greater recognition.

Furthermore, the 21st century has brought changes in time management by households. Research conducted in the USA suggests that women gradually increase their market working time and reduce the time devoted to household duties. The trend observed in males is exactly the opposite – men tend to spend an increasing amount of time on doing chores at home (Byrant and Zick, 2006: 127).

The study has two principal objectives: to analyse the time budget of the Polish population, with particular emphasis on leisure time and evaluation of changes that occurred in leisure time management during the years 2003/2004–2013, and to assess the diversification of time devoted to leisure depending on the level of income among working people. Theoretical models of household habits related to time budget management suggest that the level of income belongs to the factors that determine the share of leisure time in the total time budget. The research hypothesis relies on the assumption that leisure time is reduced along with an increase in income and that the structure of time devoted to work shifts from the non-market structure to the market structure.

The research to assess changes in the time budget of the Polish population in 2003/2004 and in 2013 used the following parameters: average duration of activity, average time of activity performance and percentage of persons performing activity. The data published by the Central Statistical Office of Poland was applied in that study. The relation between the level of income and leisure time was analysed on the basis of individual data from Time Use Survey conducted by the Central Statistical Office in 2003/2004. The analysis focused on the diversification of leisure time of employed people and, apart from characteristics of the distribution of leisure time, in this part the single-factor variance analysis and the Gini coefficient were applied. Interestingly, in Poland research on leisure time is conducted at long time intervals and results are published with considerable delay.

2. Leisure time – definition

Time budget is defined as a combination of human behaviours (activities) of a total duration of one day or a larger calendar unit or a combination of time sections intended for various life activities. The main components of time budget include personal care, income-earning activities, commuting, performing housework, activities not based at home, education (learning and development), and free time.

Leisure time is a particular component of general time budget. It is defined in various ways but most frequently as “time without duties intended for free activities” (Pięta, 2014: 11) or as “time beyond work necessary for earning a living” (Bywalec, 2007: 62). An extended definition of leisure time distinguishes time occupied and the remaining time which can be devoted to relaxation (holiday) and semi-activeness. Leisure time is here described as “the part of time budget which is not occupied by regular and additional paid work or by systematic education at university or by satisfying elementary physiological needs (sleep, meals, hygiene) or by regular household chores (cooking, washing, cleaning, caring for family members who are unable to take care of themselves) and may be either intended for free holidays or family life, social duties and activities that bring temporary benefits” (Pięta, 2014: 25). Table 1 presents definitions of leisure time proposed by selected authors.

Table 1. Selected definitions of leisure time

Author	Definition
Dumazedier (1974: 133)	Leisure time encompasses “all activities human does for himself or herself, to keep strong, to enrich his or her experience, to broaden knowledge, for the purpose of voluntary social cooperation or free artistic activity when one is free from professional, family and social obligations.”
Zawadzka (1976: 183)	Leisure time is “time spent on non-obligatory activities undertaken voluntarily for the sake of rest, entertainment, versatile development, participation in social life.”
Okoń (1981: 45)	Leisure time is “time one has after having performed duties: professional work, obligatory education at school and at home, and necessary household chores.”
Przećlawski (1993: 75)	Leisure time is the “time one has for free disposal after having performed activities related to biological and hygienic needs (sleeping, eating, and toilet) and obligatory activities (work, education, family duties, commuting to work or school).”
Gaworecki (2007: 90)	Leisure time is “time beyond professional work, which remains to be freely used for relaxation, enjoying the achievements of modern civilisation, developing one's interests, and entertainment.”
Winiarski (2011: 15-16).	Leisure time is defined, in quantitative terms, as a part of the daily time budget which remains after having fulfilled all professional and non-occupational obligations and after having satisfied the basic needs (physiological and hygienic) of the organism and, in qualitative terms, as the time that can be freely spent, for example, on leisure, entertainment and self-development.
Niezgoda (2014: 104)	Leisure time is the time off work plus any obligatory activities freely chosen by an individual, consistent with their interests and devoted to, for example, entertainment, leisure or pursuing personal interests.

Source: own elaboration based on literature indicated in the table.

Definitions of leisure time stress the voluntary nature of activities, unselfishness (no financial compensation) and pleasure associated with the activities undertaken. Leisure time of both adults and teenagers depends on their individual needs, customs and life conditions. Adults who are tired with work usually spend their leisure time relaxing whereas teenagers devote most of their leisure time to entertainment and pursuing of their interests.

In practice, it is hard to define leisure time¹ as in many cases it is difficult to distinguish leisure time from household chores (e.g. Is playing with a child or cooking for friends a form of pastime or a household duty?) (Gronau, 1977). For this reason, some researchers postulate the use

¹ A more extensive discussion of the definition of leisure time can be found e.g. in (Bombol, 2008: 11-24; Orlowska and Błeszczyński, 2016: 17-28; Cynarski, 2017: 103-105).

of the concept of non-market time (or home time). Merz and Rathjen (2014) propose a concept of genuine personal leisure time as the time left after fulfilling all market and non-market duties and obligations.

Taking into account the extent of leisure time, Bywalec (2007) distinguished its three kinds:

- small-scale leisure time (during a day),
- medium-scale leisure time (during a week, including at weekend),
- large-scale leisure time (during a year – leaves, holidays, etc.).

Leisure time can also be considered from the perspective of its function: recreational, creative, educational or care-related. Different forms of leisure time can also be distinguished, including entertainment, hobby, tourism, sports and “unwanted” free time, like sickness, retirement, period of unemployment or disability pension.

Contemporary forms of leisure time include (Pięta, 2014: 16):

- reading books, newspapers and magazines,
- social meetings, visits, fun and entertainment, etc.,
- listening to the radio,
- watching television,
- tourism and recreation (excursions, canoeing, rallies, trips),
- active participation in sports (practising specific sports disciplines as an amateur or professional),
- going to theatres, musical institutions, participation in artistic and cultural events (theatre, cinema, concerts, exhibitions),
- hobby (personal passion in the sphere of science, technology, art, culture, collectibles, etc.),
- listening to music, watching movies at home,
- walks,
- religious practice, funerals, grave and tomb care, other activities of religious nature,
- work and social activities (social activity, social and professional activity, political meetings, meetings, demonstrations, etc.),
- other forms of leisure.

The way leisure time is spent is largely determined by personal attitudes and taste as well as real life conditions, including those related to work.

3. Time allocation

The consumption of leisure time² is one of the elements of household choice theory. At present, it is assumed that consumers derive satisfaction not only from the consumption of goods and services but also from leisure time at their disposal. The sharing of time for work and relaxation is an economic choice like any other. Leisure time is, in principle, a particular type of economic goods associated with an alternative cost. Households devote their time to market work, housework and leisure time. Due to objective time limits, there is a trade-off between the above alternatives, e.g. an increase in working time will always entail leisure time reduction.

Housework is related to the possibility of obtaining goods and services which may be used by a consumer for his or her own needs or may be resold. The two kinds of work mentioned above are considered to be substitutes (usually imperfect ones due to technical limitations), e.g. some works performed at home on one's own may replace market services. It is assumed that regardless of the generated products and services, housework may be a source of satisfaction on its own (e.g. for people who like gardening) or negative usability (e.g. in case of those who dislike ironing).

It should be noted that goods are a source of consumer satisfaction, no matter if they are purchased on the market or produced and consumed at home. Satisfaction derived from leisure time is another component of the usability function³. It should be stressed that the consumption process is actually a combination of goods (both market goods and services as well as those produced at home) with a certain dose of time at the disposal of households (Becker, 1990).

The choice between market work and housework is conditioned by a mutual relationship between the value of the end product and the level of real market wages. If a household may produce more goods on its own during an additional hour than it would purchase for wages generated from market work, then it will not undertake market work (cf. (Kooreman and Kapteyn, 1987). Moreover, the exchangeability of market work (which enables one to purchase market goods) and housework (which is related to the production of home goods) is affected by technological restrictions (e.g. possibility of repairing a car on one's own or of maintaining the

² Leisure time models are usually based on a one-person household, so in this section the concept of consumer and household are used interchangeably.

³ Some researchers suggest that work by itself (and not only goods and services which may be consumed by household thanks to work) can also be a source of satisfaction. However, models which include satisfaction with work do not provide extensive explanation of decisions on the division of time into work and leisure time (Bryant and Zick, 2006: 131).

garden, etc.). Applicable normative regulations that determine daily, weekly, monthly and yearly working time constitute another factor which actually restricts the possibility of unlimited expansion of market working time⁴.

A decision about time management is influenced by both objective market criteria and subjective consumer preferences and attitudes. The former include the amount of work offered and the pay that can be earned. Income from work may be calculated by multiplying the number of hours worked and the hourly rate of pay. If it is assumed that the pay rate remains unchanged in a short-term perspective (which results, for example, from the quality of work and the situation on the labour market)⁵, then an increase in real cash income (or, more broadly, the amount of goods and services which may be consumed by a household) requires more hours of work. Marginal utility declines both with reference to the consumption of goods and leisure time. The limitation of leisure time increases its marginal utility whereas additional units of goods obtained thanks to longer working time provide lesser and lesser satisfaction to consumers.

Similarly, an increase in unit pay level encourages employees to devote more time to work (and thus restricts leisure time⁶). If one spends more time working, usability related to the possibility of financing increased consumption is obtained thanks to additional pay even though work is thought to be a source of distress. As long as usability (satisfaction) of every hour of work (which is actually the real rate of unit pay) is greater than satisfaction with the last hour of leisure time, an individual will increase the amount of time devoted to work. However, in case of a high level of pay, the income effect of a higher pay will surpass the substitution effect and the amount of time devoted to work will be limited in favour of leisure time⁷. The backward-bending labour supply curve will appear. Empirical research shows that currently the flexibility indicator of the supply of working time to the pay rate change is rather positive or that the supply is not flexible (Costa, 2000; Blundell and Macurdy, 1999).

Both market work and housework secure the consumer materially and determine the possibility of acquiring consumer goods and services. Therefore, if one assumes a certain basket

⁴ Although the duration of housework is not regulated, the principle of diminishing marginal productivity resulting from tiredness and weariness also applies to it.

⁵ In the long-term perspective, market pay rate of a household may be changed due to the possibility of raising qualifications or education level and acquiring professional experience.

⁶ It should be remembered that the “price” of one hour of leisure time is in fact equal to the hourly rate of pay.

⁷ In the leisure time model, it is assumed that it is an ordinary benefit. This means that the more people earn, the more leisure time they will be inclined to “consume.”

which satisfies one's living minimum, it is necessary to devote some time to income-earning activities⁸. The extension of the model by non-labour income allows a household to limit time devoted to work and thus increase leisure time with the preservation of unchanged usability level (cf. (Holz-Eakin et al., 1993)).

Along with economic aspects, subjective factors resulting from the consumer's social and demographic characteristics are other factors which determine the share of leisure time in the entire time available to a consumer. These subjective factors include, for example, age, education, family size, ethnic origin, or beliefs concerning social roles attributed to individual genders⁹. Other factors which determine the extent and consumption of leisure time are those related to the condition of health, level of fitness and physical efficiency (biological factors), temperament, personality and life attitudes (psychological factors).

Technological changes can also have an influence on the consumption of time by households; they exert influence in two dimensions. Firstly, they expand the choice of products and services available to consumers, which encourages households to increase working time in order to be able to afford better goods. On the other hand, technological progress increases the final productivity of capital (for example, better pay), which has an influence on the reduction of time necessary for performing specific activities and thus can lead to increased amount of leisure time.

4. Data and methods

Contemporary research on time budget has various objectives and allows for both a macroeconomic and microeconomic analysis. It is applied in the examination of the time of income-earning activities, rationalisation of work (also housework), examination of the population's standard of living, estimated value of work in the household and value of leisure time. It provides information used to take action in the sphere of social policy and labour market. Research on leisure time is also used for marketing purposes (for example, to deploy infrastructure, points of sales, analyse demand for specific services and products).

⁸ To simplify the considerations, people who are not involved in income-earning activities (those on disability pension, retired people, the unemployed, etc.) have been ignored.

⁹ Women who have a stronger preference for the production of some goods and services at home in their pursuance of the traditional social role attributed to them may be taken as an example here.

In the article, analyses are based on data from the Time Use Survey conducted at the end of 2003 and beginning of 2004 and in 2013. Both were carried out by the Central Statistical Office with the use of the methodology adapted to the Eurostat requirements. The sample in the research of 2003/2004 included individuals at the age of 15 or more from randomly chosen households. The total number of subjects in the sample was 20,264. Ten years later, the total of 40,049 subjects at the age of 10 or more (including 38,968 subjects at the age of 15 or more) took part in the time budget research of 2013.

There are slight methodological differences between research conducted in 2003/2004 and in 2013. Upon limiting the set to individuals aged 15 or more, results related to the majority of activities may be compared.

In order to specify general tendencies appearing in the time budget of Poles during the examined decade, the following indicators have been used (Central Statistical Office of Poland, 2015: 44):

- average duration of activity (per person regardless if they performed the given activity or not) – determines the place of a given activity within the structure of time use of the surveyed population, it does not specify the actual duration of performed activities,
- average time of activity performance (per person performing the given activity) – calculated only for the people carrying out the activity; it specifies the actual duration of performed activities,
- percentage of persons performing an activity (as a percentage of persons performing an action of the total number of respondents),
- ratio of free time, which measures the time share of activities performed during leisure time in relation to the time of all activities performed outside of work and related activities.

Also empirical distributions of the duration of activities have been examined by specifying their typical distributions, directions of asymmetry distributions and fractions of the examined population for which the time of activity is shorter than average time for the entire sample. Single-factor variance analysis and the Gini coefficient have been used to analyse leisure time for quintile groups. In the case of the Gini coefficient, the formula for non-grouped data has been used (Kot, 2000: 112-116):

$$G = \frac{\sum_{i=1}^n (2i - n - 1)x_i}{n^2 \bar{x}}$$

i – ranks of feature values ($i=1$ for the lowest value, $i=n$ for the highest value)

x_i – feature values,

\bar{x} – arithmetic mean of a feature,

n – number of units analysed.

The Gini coefficient belongs to the most frequently used measures of inequality (Lorenz concentration index). The coefficient takes values from the range $<0, 1>$ and its higher value indicates greater inequalities.

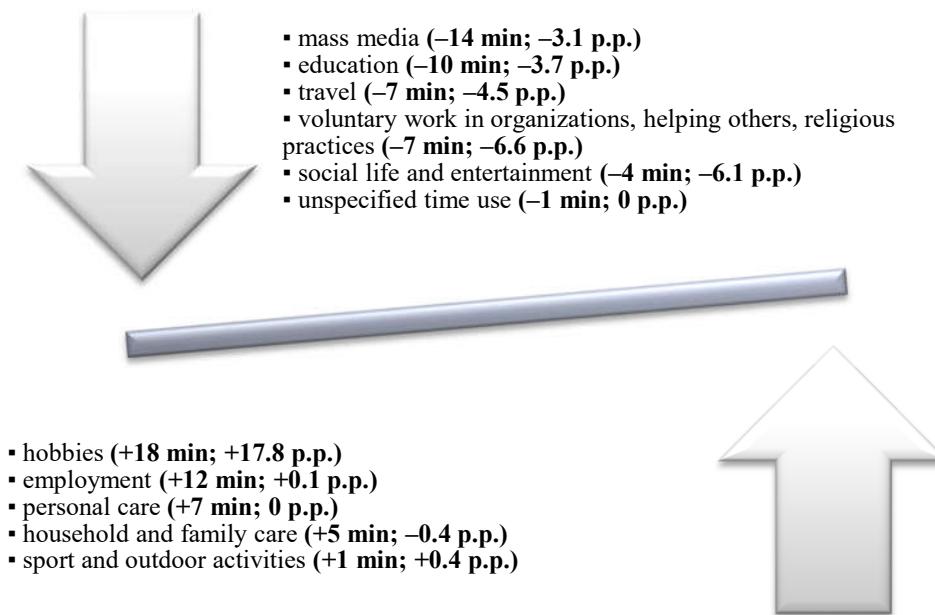
5. Time budget in the years 2003/2004 and 2013

An analysis of the daily time budget implies that the majority of time (with the exception of personal care) is devoted to work and education (table 2). Considering only the activities classified as leisure time components, it should be stated that the subjects devote approximately 12% of their time budget to the use of mass media. It should also be added that more than 90% of subjects spend their leisure time in this way. “Social life and entertainment” is the second component of leisure time in quantitative terms. Subjects devoted 6.8% of their daily time budget to this way of spending their leisure time in 2013. It is important that the percentage of people spending their time in this manner decreased throughout the years. These changes are triggered by the development of information technologies and home-centeredness of consumption (also leisure time), which are conducive to individual pastimes (Lipski, 2008; Wałęga and Wałęga, 2016). The share of people who pursue their personal interests in their free time has doubled. The average time of performing these activities has also been extended.

Table 2. Average daily time of activity performance (in minutes), share of activities in the domestic time budget (%) and percentage of persons performing activities (%) in selected groups of activities in the years 2003/2004 and 2013

Specification	Average time of activity performance (min.)		Share of activities in the domestic time budget (%)		Percentage of persons performing activities (%)	
	2003/2004	2013	2003/2004	2013	2003/2004	2013
Personal care	663	670	46.0	46.5	100.0	100.0
Employment	427	458	11.1	12.0	37.6	37.7
Education	301	313	2.3	1.6	11.1	7.4
Household and family care	219	226	13.9	14.3	91.6	91.2
Voluntary work and meetings	95	95	1.9	1.5	29.0	22.4
Social life and entertainment	95	98	4.8	4.6	73.5	67.4
Sports and outdoor activities	88	91	1.6	1.7	25.9	26.3
Hobbies	87	94	1.1	2.4	18.6	36.4
Mass media	181	172	11.8	10.9	94.2	91.1
Travel	81	77	4.9	4.4	86.8	82.3

Source: own calculations based on: (Central Statistical Office of Poland, 2015).

Figure 1. The balance of changes in the duration of activity (in minutes), changes in the proportion of persons performing selected groups of activities (in p.p.) in 2013, compared to 2003/2004

Source: own elaboration based on: (Central Statistical Office of Poland, 2015: 211).

The indicator of the duration of activities allows for balancing the time budget of an average Pole (who is at the age of 15 or more). If one compares the time budget in the examined years, it may be noted that average time devoted to mass media, education, commuting, volunteering in organisations, helping others, religious practices, social life and entertainment has decreased (figure 1). The time is devoted to a much larger extent to personal interests and hobbies as well as employment but to a lesser extent to personal care, housework and participation in sports and recreation. Analyses of more detailed data suggest that the transformation of leisure time intended for mass media, for personal interests and hobbies is related to the popularisation of computers and the Internet. In the case of commuting, the reduction of the duration of these activities may result from the popularisation of work from home and easier transport (during the period covered by the analysis, the number of cars registered in Poland per the population of 1000 increased by 60%, the length of motorways increased four times and the length of express roads increased more than six times).

The share of leisure time in all activities performed beyond work amounted to approximately 31% and has not changed considerably during the analysed years. Modification has been noted in the average duration of individual activities and percentage of persons performing activity. The analysis of changes in leisure time management during the period 2003/2004–2013 implies that the share of those who used this form of activity in their leisure time has decreased in the majority of cases (table 3). On the other hand, the percentage of individuals who use a computer and the Internet, who relax in a passive way, who read books and do physical exercises has risen – by more than 20 percentage points, more than 6 percentage points, more than 1.5 percentage points, and 0.8 percentage points, respectively.

Table 3. Average daily time of activity performance (in minutes) and percentage of persons performing activities (%) in selected groups of leisure time activities in the years 2003/2004 and in 2013

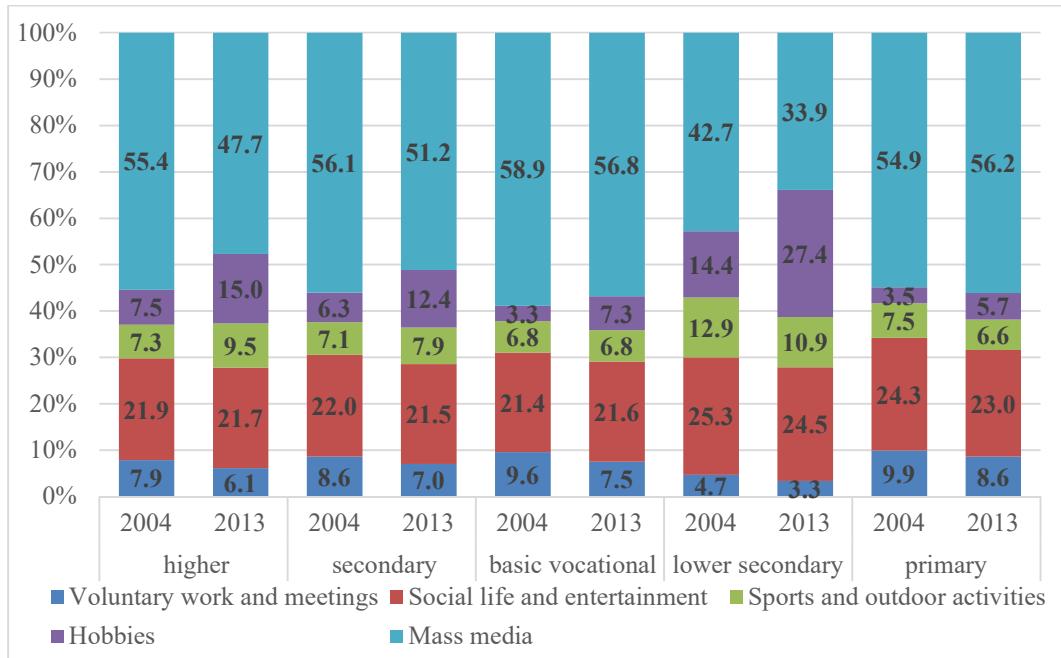
Specification	Average time of activity performance (min.)		Percentage of persons performing activities (%)	
	2003/2004	2013	2003/2004	2013
Voluntary work and meetings				
Organisational work	152	143	0.5	0.4
Informal help to other households	123	132	10.9	7.1
Participatory activities	67	69	20.0	16.4
including religious activities	66	68	19.7	16.2
Social life and entertainment				
Social life	83	86	64.3	52.1
Entertainment and culture	113	118	2.1	2.0
including cinema	111	106	0.6	0.8
Theatre and concerts	133	142	0.3	0.3
Museums and art exhibitions	76	107	0.1	0.1
Sporting events	123	124	0.3	0.2
Rest	53	57	27.0	33.6
Sports and outdoor activities				
Physical exercises	80	86	24.5	25.3
Productive exercise (hunting, fishing, picking berries, mushrooms or herbs)	172	172	1.8	1.2
Hobbies				
Arts and hobbies	98	93	1.6	2.0
Computing, Internet	81	82	5.6	27.4
Games	76	84	13.2	12.1
Mass media				
Reading	61	68	38.2	30.6
including reading periodicals	44	47	28.5	17.1
Reading books	72	76	14.6	16.4
Watching TV, video or DVD	152	150	90.0	86.2
Listening to radio or recordings	55	55	18.7	11.1

Source: own elaboration based on: (Central Statistical Office of Poland, 2015: 227-232).

The reduction in the percentage of individuals performing a given activity was associated with an increase in average time of activity performance. The greatest increase of the time was noted for visits to museums and exhibitions (increase by more than 40% – 41 minutes), reading (increase by more than 11% – 7 minutes), participation in games (individual and social, computer, television and other games) – increase by more than 10% (8 minutes). In 2013, the time spent watching TV

or DVD was, on average, 2 minutes shorter than ten years ago, the time devoted to arts and hobbies was 5 minutes shorter and the time spent in cinemas was 5 minutes shorter on average.

Figure 2. Leisure time use structure of individuals aged 15 or more depending on the level of education in 2003/2004 and in 2013



Source: own elaboration based on: (Central Statistical Office of Poland, 2015: 242-251).

The assessment of changes in the structure of leisure time use, depending on the education level and indirectly also on the level of income, indicates that the share of time spent using mass media in total free time was reduced in general during the analysed period. Individuals with elementary education are exceptions here as their share increased by 1.3 percentage points. The share of time devoted to social life and entertainment was decreased to a small extent whereas the time allocated to personal hobbies and passions increased. This mostly concerns individuals with lower secondary education (13 percentage points) and higher education (7.5 percentage points). When it comes to subjects with higher education, the share of time devoted to sports and recreation also increased (2.2 percentage points).

6. Leisure time versus income level

The influence of income level on the use of leisure time was assessed using individual data from the Time Use Survey for 2003/2004 as published by the Central Statistical Office of Poland.

When examining the influence of the level of generated income on the time devoted to individual activities as part of home time budget, it should be stated that the increase in monthly income entails a distinct downward tendency of average time devoted to “housework” and “social life and entertainment” (table 4). Average time spent on learning and on personal care drops along with an increase in income in case of individuals who generate monthly income of PLN 2,800 or less. The subjects who earn more devote increasing amounts of time to learning and personal care. In case of lower monthly income (up to PLN 800), subjects spend more and more time on average on income-earning activities whereas in case of higher income (above PLN 2,800) the time intended for work gradually decreases. In general, an increase in average monthly income entails a decrease in average time devoted to activities related to leisure time (with minor exceptions). These tendencies coincide with results of international research and assumptions on which the model is based. An increase in income (related to market work) is associated with a trend to acquire market services in substitution of housework done on one's own. At the same time, wealthier households enjoy greater possibilities of using modern, time-saving household equipment.

Table 4. Average daily time of activity performance (in minutes) in selected groups of activities by average monthly net income per capita in PLN in 2003/2004

Specification	<500	501-650	651-800	801-1200	1201-1500	1501-1800	1801-2200	2201-2800	2801-4000	>4000
Personal care	646	621	608	605	604	601	596	595	605	616
Employment	339	459	481	467	460	452	466	455	450	430
Education	254	195	176	164	160	148	148	118	152	192
Household and family care	202	182	174	183	174	172	164	163	156	146
Voluntary work and meetings	88	82	87	83	82	86	94	60	81	69
Social life and entertainment	91	88	80	80	84	75	80	75	88	73
Sports and outdoor activities	84	83	91	82	87	97	81	92	71	70
Hobbies	76	71	77	76	73	72	90	88	70	69
Mass media	156	152	147	151	154	162	151	161	147	166

Source: own elaboration based on: (Central Statistical Office of Poland, 2005: 198).

Considering the fact that approximately 30% of daily time budget is devoted to income-earning activities, the analysis covers the diversification of leisure time of those who work and thus receive salary or wage¹⁰. Time devoted to social life and entertainment is characterised by the greatest diversification and the greatest right-tailed asymmetry (table 5). More considerable share of time allocated to personal interests and hobby is observed in a daily time budget as compared to all subjects. In this case, the percentage of people who spend less time on personal interests than the average value is the greatest (which confirms right-tailed distribution asymmetry). Professionally active people allocate less time on average to other activities related to leisure time than all examined subjects. These observations coincide with research results, as in e.g. Hu et al. (2015).

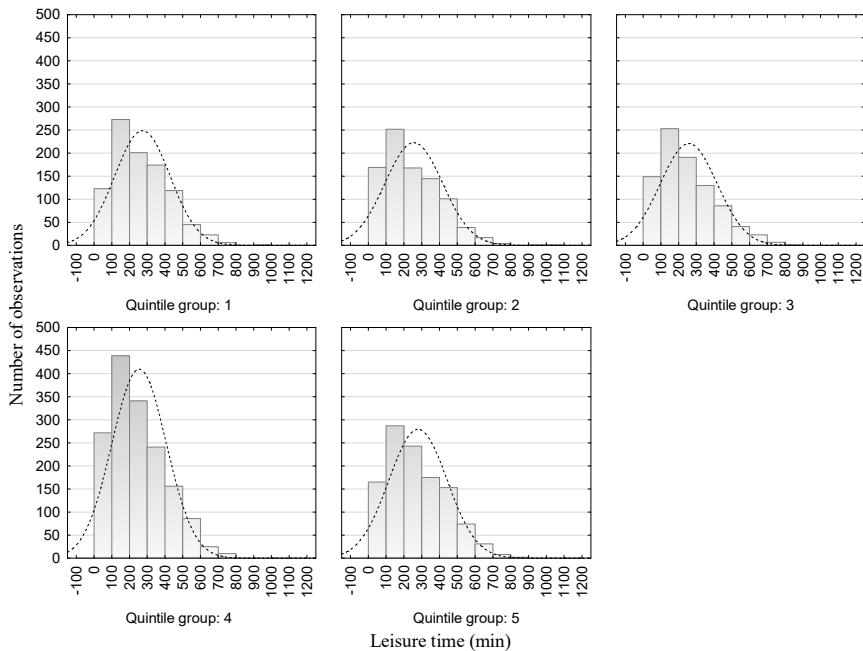
Table 5. Characteristics of the distribution of leisure time for the employed in 2003/2004

Specification	Average (min.)	Share of activities in the domestic time budget (%)	Coefficient of variation (%)	Asymmetry	Percentage of persons performing activities (%)	Percentage of people with less time than the average value (%)
Voluntary work and meetings	65	4.5	58.91	0.39	20.95	62.35
Social life and entertainment	88	6.1	98.29	0.98	70.41	63.34
Sports and outdoor activities	86	6.0	81.82	0.67	22.47	63.76
Hobbies	95	6.7	89.22	0.66	15.54	66.82
Mass media	163	11.3	62.25	0.68	95.12	58.03
Leisure time in total	262	18.2	60.36	0.60	100.00	56.98

Source: own calculations based on individual data from the Central Statistical Office of Poland.

An analysis of leisure time diversification depending on the obtained pay has been conducted in quintile groups of monthly pay. Right-tailed asymmetry distribution of leisure time distribution is visible in each of the groups (figure 3). In case of individuals from the fourth quintile group of monthly pay, the distribution of leisure time is slenderer as compared to distributions for other quintile groups.

¹⁰ Professionally active people included those individuals who earned on paid employment or from self-employment.

Figure 3. Distribution of leisure time by quintile groups of net monthly pay in 2003/2004

Source: own calculations based on individual data from the Central Statistical Office of Poland.

A single-factor analysis of variance has been conducted in order to verify whether the average amount of leisure time differs depending on the quintile group of monthly pay. Levene's test has not provided grounds for rejecting the zero hypothesis of variance equality ($p=0.0923$). Categorised normal probability plots imply that leisure time distribution in individual groups is approximately normal; therefore, the assumptions of the application of variance analysis have been fulfilled. Statistically significant variance analysis result ($p=0.0001$) allows one to state that the average leisure time differs in individual groups. *Post-hoc* test has been performed in order to identify which means are significantly different. Tukey's HSD test has indicated significant differences between average leisure time of subjects qualified in the fifth quintile group and those from the second, third and fourth quintile groups.

The diversification of leisure time at the disposal of employed individuals devoted to individual activities and quintile groups has been examined with the use of the Gini coefficient (table 6). The slightest inequalities concern leisure time spent on "voluntary work in organisations, helping others, or religious practices" whereas the greatest diversification is observed with reference to leisure time devoted to "social life and entertainment", followed by "hobbies."

Table 6. Gini index of leisure time by quintile groups of net monthly pay in 2003/2004

Specification	Total	Quintile group				
		1.	2.	3.	4.	5.
Voluntary work and meetings	0.283	0.301	0.286	0.289	0.260	0.311
Social life and entertainment	0.474	0.476	0.464	0.482	0.477	0.477
Sports and outdoor activities	0.387	0.369	0.415	0.386	0.388	0.399
Hobbies	0.429	0.442	0.457	0.418	0.446	0.424
Mass media	0.338	0.333	0.349	0.344	0.336	0.336
Leisure time in total	0.338	0.322	0.355	0.347	0.340	0.331

Source: own calculations based on individual data from the Central Statistical Office of Poland.

Table 7. Structure of leisure time (%) by quintile net monthly pay in 2003/2004

Specification	Total	Quintile group				
		1.	2.	3.	4.	5.
Voluntary work and meetings	5.21	6.34	5.28	5.01	4.70	5.01
Social life and entertainment	23.73	26.13	22.80	22.61	23.63	23.35
Sports and outdoor activities	7.37	6.25	7.69	7.44	7.29	8.09
Hobbies	4.43	3.71	4.20	4.26	4.11	5.71
Mass media	59.27	57.57	60.03	60.68	60.27	57.85

Source: own calculations based on individual data from the Central Statistical Office of Poland.

The analysis of the structure of leisure time of individuals who are employed, depending on the obtained monthly salary or wages (table 7) indicates the greatest share of the “use of mass media” and “social life and entertainment” in the leisure time structure. The share of time devoted to personal interests in total leisure time increases along with an increase in income. In general, an upward trend concerns also participation in sports and recreation. Yet the higher the income, the less time is devoted to voluntary work in organisations, helping others and religious practices in leisure time.

7. Conclusion

Increasing wealth of societies entails particular interest in issues related to the economics of leisure time. Not only do technological progress and social transformations modify the extent of free time in absolute terms but also the reduced relative time and the unification of time consumption. This

is caused, for example, by globalisation and other factors. At the same time, the boundary between leisure time and work more frequently becomes less distinct.

Nowadays, it is often said that leisure time is subordinated to a consumer lifestyle. This results in progressing development of leisure time industry as evident in the culture industry, mass media and tourism.

An analysis of daily time budget allocation by the Polish population during the years 2004–2013 indicates the symptoms of the above tendencies. With the growing popularity of the Internet and mobile devices, an increasing number of people have restricted the use of mass media (watching TV, listening to the radio, and reading). A conclusion may be drawn that life is becoming more intensive – people work more and spend an increasing amount of time pursuing their own interests. The reduction of time devoted to social life, voluntary work in organisations, helping others or religious practices coincides with more and more widespread individualism.

The conducted research has confirmed that the income level affects leisure time. In principle, higher income does not restrict leisure time but is associated with different time management. A negative dependency has been noted between the income level and time devoted to housework. Analyses with the use of the Gini coefficient suggest considerable diversification of leisure time allocated to personal interests and social life.

No distinct variance has been identified in the leisure time structure of those who earn a lot and those with lower income. Regardless of which quintile group one belongs to, approximately 60% of leisure time is devoted to the use of mass media. The Polish society is largely egalitarian in this respect.

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Czas wolny a dochód. Wybrane wyniki dla Polski

Streszczenie

Zmiany w zakresie gospodarowania czasem są odbiciem współczesnych przemian społeczno-gospodarczych. Wskaźniki sposobu wykorzystania czasu wolnego mogą być uznane za niekonwencjonalne mierniki jakości życia. Struktura budżetu czasu, obok struktury wydatków konsumpcyjnych, jest również uważana za pełnoprawny składnik dobrobytu indywidualnego i społecznego. Analiza budżetu czasu ludności jest zatem interesującym zagadnieniem wpisującym się w problematykę warunków życia rodzin w Polsce. Stanowi cenne źródło informacji na temat rozmiaru i sposobu wykorzystania czasu przeznaczonego na pracę, obowiązki domowe, naukę, rekreację i odpoczynek.

Celem pracy jest analiza budżetu czasowego ludności polskiej, ze szczególnym uwzględnieniem czasu wolnego, oraz ocena zmian zachodzących w zarządzaniu czasem wolnym w latach 2003/2004-2013. Autorzy starają się również ocenić zróżnicowanie czasu wolnego w zależności od poziomu dochodów osób pracujących. Analiza została przeprowadzona na podstawie reprezentacyjnego badania budżetu czasu ludności przeprowadzonego przez Główny Urząd Statystyczny.

W badanym okresie zidentyfikowano transformację w zakresie wykorzystania czasu wolnego – coraz popularniejsza stała się realizacja własnych zamiłowań (hobby), a także odejście od tradycyjnych mediów (TV, radio) na rzecz Internetu. Poziom dochodu w ograniczonym zakresie wpływa na sposób spędzania czasu, a obserwowana dynamika zmian nie wpływa na zmianę struktury rozdysponowania czasu wolnego w grupach kwintylowych.

Słowa kluczowe: czas wolny, badanie budżetu czasu, poziom dochodu.