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THE TIME BUDGET OF THE POPULATION OF WARSAW

Time budget — the nature and duration of definite activities during the 24 hour cycle — allows uncovering of the actual living standards of the individuals and the human communities inhabiting a definite area. Until now the long term trends in the changes of the time budgets have been linked with the increase of the share of freely spent time, at the expense of the so called social time, devoted to work, learning, commuting, as well as various duties connected with the functioning of the household. In the years of the political and economic crisis of the 1980s in Poland — as compared to the 1970s — people tended to concentrate more on their family lives. This was reflected through the increase of significance of physiological needs and home duties, and the decrease of the share of time devoted to work (the legal limitation of the work time of 1981), to commuting and to education (Milic-Czerniak, Misiuna, 1990). The contemporary economic transformation requires a more flexible adaptation to the situation on the labour market. Thus, people often take up additional jobs, wishing to change or enhance their skills, while the increasing prices of the specialised service encourage to taking up repair work in one's own household. Excessive involvement in acquisition of additional incomes, coupled with the feeling of threat from potential joblessness, can limit the time previously devoted to physiological functions, and especially the leisure time. On the other hand, in case of persisting unemployment leisure time may turn into the so called empty time, the time of forced passivity, spent in an incidental and chaotic manner.

The regional and local conditions set on the structure of the time budget are most frequently connected with the socio-demographic specific features of the given area, and especially with the degree of development, and the status of the technical and social infrastructure, which can in a significant manner facilitate or limit carrying out of definite activities. Thus, for instance, in large urban agglomerations, given the low capacity of the transport network and the growing numbers of roads users, commuting times may get excessively long. The greater the local differences in the socio-demographic structure and in the development of the urban infrastructure, the bigger expected differentiation of the structures of time budgets of the population.

The study here reported concerned the time budget of the inhabitants of

Warsaw, living in eight housing estates located at different distances from the city-centre. Time budgets were defined on the basis of responses to the questionnaire, which was distributed among 392 persons (of at least 15 years of age) from the eight urban areas mentioned. In each location 49 persons filled out the questionnaire, divided into groups of 7 different persons describing the time distribution of their activities in the same day of the week. The choice of the persons was random. The questionnaires were being filled in between September 1994 and March 1995. Respondents marked their activities during the day against the time axis with the accuracy of 15 minutes. Classification of the activities corresponds in principle to the one proposed by the Central Statistical Office (GUS) in the study of the time budget of 1984 (*Analiza...*, 1987), with the reservation that a certain aggregation of the activities was introduced. Thus, activities were classified into seven basic classes: physiological (three activities — sleep, personal hygiene, meals), the income generating work (main and additional), the job related movements, including commuting, the education (outside of home and at home), the external activities (five kinds), the domestic activities (six kinds), and leisure (14 kinds of activities)¹.

Within the population sample considered the physiological activities were of course most often encountered (100% of respondents), closely followed by leisure (99.7%), and then domestic duties (80.6%), as well as commuting (73.7%), with less frequently appearing work (57.7%) and external activities (58.2%), and the least frequently noted educational activities (21.2%). Proportions of time devoted to these activities during the 24 hour daily cycle (average over the seven days of the week) were as follows: physiological activities — 40.0%, leisure (23.2%), work (17.9%), domestic occupations (8.1%), commuting (3.9%), learning (3.9%), and external activities (3%). These proportions take different shape during work days and weekends. Thus, during weekends the share of physiological activities increases (43–47%), along with the share of leisure (32–41%), and domestic occupations (8–10%).

Only 43% of respondents were of the opinion that during the preceding two years the shares of individual activities in their time budget had changed. Those who noted definite bigger changes signalled an increase of time devoted to work (24%), main and additional, and the decrease of leisure time share (15%), education (8%), and domestic activities (6%). Simultaneously, as many as 43% of respondents have not noted changes. Besides

¹ In spite of the random selection of respondents their demographic and socio-economic characteristics only slightly diverged from the basic features of the whole population of the town. Proportion of women corresponded to that for Warsaw as a whole (54%). The share of the elderly, above 65 years of age, was smaller, while that of the young, up to 25 years of age, was bigger than on the average in Warsaw (7% and 21%, respectively, in the sample analysed). The representation of persons with only primary education was small (7%), while other education levels were better represented (university education — 24%, high school — 53%, vocational — 16%).

this, 41% of persons did not expect essential changes in their time budget in the nearest period to come, while a further 37% did not have any opinion on this issue, which confirms the routine character of the basic activities and behaviours. The expected changes resulted primarily from the perspective of reaching a certain new stage of family life (taking up of work, marriage, retirement).

The amount of time devoted to particular activities during the 24-hour daily cycle is to a large extent conditioned by the fundamental socio-demographic features of the respondents — namely sex and age. Thus, males would devote more time to work and commuting, and had more of leisure time, while females would apportion more time to domestic occupations and external activities (various duties linked with household management), and to education. The greatest disproportions existed in case of domestic occupations (11.2% of the time budget of women and only 4.8% for men), and in case of leisure time (20.4% of the time budget of women and 26.2% for men). Young people, up to 25 years of age, spent most of their time on education (16.5% of the time budget) and on commuting (5%), and the least on domestic occupations and the external ones, resulting from the needs of the household organisation (only 6.6% of the time budget, compared to 11.1% for the whole population considered). Work took the greatest share of the time budgets of the population in productive age. The oldest group (of more than 65 years of age) devoted most of their time to physiological activities (46.4%), leisure (27.3%) and domestic occupations (14.9%), as well as shopping and visits in the health care centres (4.9%). Out of all the age group the share devoted to commuting and other movements is the smallest in this group (1.6%).

The influence of the socio-economic characteristics is less pronounced. If we admit that the most synthetic and reliable property is constituted by the level of education, then we observe that the time budgets of persons with high school and university education differ only slightly. Thus, persons with university education devote less time to commuting (3.8% of the time budget) than those with vocational training (4.1%), and less time to physiological activities (respectively, 39.8% and 40.8%), to domestic occupations (7.8% and 8.3%, respectively), to education (0.8% and 1.5%), and to leisure (22.1% and 23.7%). On the other hand, those with university education devote a greater share of their time budget to work (22.3% and 19.2%, respectively) and to external activities (3.5% and 2.4%). Persons with university education (contrary to the ones with vocational training) are more often taking up additional work during work days (as much as 21.1%), which finds its counterpart in the decreased length of their leisure time.

The housing estates analysed are located in different distances from the centre of town (Fig. 1). The estates located closer to the downtown have been built in different periods, with a part of their structures dating back to before the World War II (like, e.g., *Saska Kępa* or *Solec*), but primarily with the houses built in 1960s and 1970s. Similarly as in other housing estates a

marginal percentage share of the respondents was constituted there by the persons living in single family houses, since such persons were disinclined to respond to the survey. Within Saska Kępa, Sady Żoliborskie and Solec side by side with the 3–4 storey buildings there also 10-storey blocks built at the turn of 1970s. The estate Za Żelazną Bramą is dominated by large 15-storey blocks and the lack of green surfaces in the vicinity is most acutely felt in this area. In all the estates mentioned here the accessibility to service is the highest in view of the close distance to the centre. Two kinds of estates located outside of the commune of Warsaw-Centre should be distinguished. Thus, Ursynów, Bemowo and Tarchomin are the youngest estates established in 1970s or at the turn of 1980s. The architecture of



Fig. 1. Locations of the selected housing estates in Warsaw.

these urban units is dominated by the houses of 3 to 10 floors (less frequently up to 15 floors). Smaller areas are occupied by the single family and row houses built at the turn of 1990s. These estates are characterised by the least developed technical and social infrastructure, sometimes of even the basic level (like schools or kindergartens). A somewhat different character is represented by the estate of Falenica, most distant from the centre, where 3- and 4- storey buildings built during 1960s and single family houses dominate. Until 1951 this had been an administratively independent town in the suburban zone of Warsaw, and this resulted in a much

better equipment, in terms of basic infrastructure, in comparison with other peripheral estates.

The estates are most differentiated with respect to proportions of time devoted to commuting (20.8%) and to obligatory occupations outside of home (19%). The higher variability of these activities, carried out outside of the own home, is to a large extent the result of the specific location of the housing estates in the urban space (Table 1).

Table 1

The structure of the time budget of the inhabitants of eight housing estates in Warsaw in 1995 (%). Average over seven days of the week

Activities	Za Żelazną Bramą	Solec	Saska Kępa	Sady Żoliborskie	Ursynów	Bemowo	Tarchomin	Falenica
Physiological activities	39.9	40.5	39.2	40.2	38.9	40.4	39.6	41.2
Work and education	20.6	22.9	20.8	20.5	25.2	22.9	24.1	18.2
Commuting	3.2	2.8	3.4	3.9	4.4	5.1	4.9	3.7
Duties outside home	3.5	2.7	3.8	3.1	2.6	2.1	2.7	3.5
Domestic occupations	7.1	8.3	8.4	8.4	6.5	7.4	8.0	8.8
Leisure time	25.6	22.8	23.9	23.9	22.4	22.1	20.7	24.6

Commuting takes the greatest share of the time budgets of persons inhabiting the peripheral estates of Bemowo and Tarchomin, while the smallest — of those who inhabit Solec and Za Żelazną Bramą estates. The average commuting time during work days in these two groups of areas ranges between 57 and 61 minutes for the downtown, and 93–99 minutes for the peripheral areas. The intermediate position is taken with this respect by the housing estates of Sady Żoliborskie and Saska Kępa (65–70 minutes). The distances between the estate areas and the centre display a statistically significant (at the level of $\alpha = 0.03$) Spearman rank correlation with the average commuting time (weekly average of the daily values), and with the times calculated for work days and weekends ($r_s = 0.83$, $r_s = 0.77$, and $r_s = 0.71$, respectively). Correlation is lower with respect to the average share of time devoted to commuting during a week ($r_s = 0.81$, $\alpha = 0.05$). More than 15 minutes a day on the average were spent on commuting by 84% of respondents (between 80% and 91%) during the work days, with the lowest indicator characterising — surprisingly — Falenica (68%), where, however, the greatest share of respondents was constituted by the retired persons and pensioners. During the weekends the mobility share is much more differentiated (only 48% of the time budget on the average); with the highest values noted for the inhabitants of Ursynów, Za Żelazną Bramą estate and Saska Kępa (64%–57%). The increased share of time devoted to

commuting (weekly average) displays a correlation with the lower share of time devoted to the freely chosen activities ($r_s = 0.69$, $\alpha = 0.03$) and to various external occupations ($r_s = -0.63$, $\alpha = 0.05$).

In the housing estates located close to the centre the least portion of time is devoted to commuting (2.8%–3.4% of the time budget), while the share of free time is higher than that of work and learning together. An intermediate position with this respect is taken by Sady Żoliborskie and Falenica, where leisure time of inhabitants is longer than the joint share of work and education, but whose inhabitants devote more time to commuting (3.4%–3.7%). In the remaining (peripheral) housing estates of Ursynów, Tarchomin and Bemowo the joint share of work and education times is longer than leisure time, while commuting takes 4.4%–5.1% of the time budget. In Tarchomin the time devoted to commuting is even longer than the proportion of time for the obligatory duties outside of home. Classification of the housing estates according to the structure of time budget in the week (conform to the ranks of particular activities during the daily cycle) obtained from the cluster analysis (Ward's method) is shown in Fig. 2.

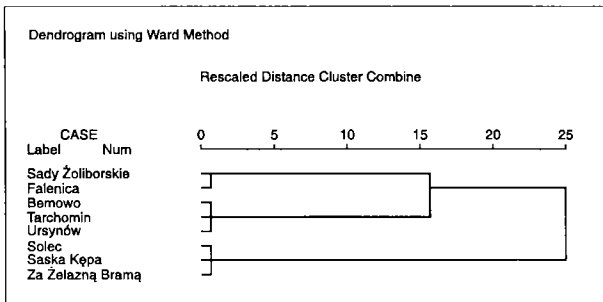


Fig. 2. Classification of the housing estates according to the structures of time budgets of their inhabitants.

Altogether, though, the variable which explains to the greatest extent the variability of time devoted to commuting in Warsaw is constituted by the infrastructural equipment of individual areas, as assessed by the respondents². The highest average rankings with this respect were obtained for the areas of Za Żelazną Bramą, Solec, Sady Żoliborskie (more than 50% of respective respondents considered equipment of these areas to be suffi-

² The degree of equipment of the housing estates in terms of the basic infrastructure was defined on the basis of an assessment done by the respondents, referring to: the number of municipal transport lines, the frequency of service on these lines, the numbers of shops, offices, cinemas and theatres, health care centers, libraries, video libraries, as well as recreation and sports outlets. Altogether more than 70% of respondents estimated that the equipment of the housing estates is sufficient in the domain of shops and video libraries, and more than 50% of them stated that there were sufficiently many lines of municipal transport lines, as well as schools and kindergartens. The lowest was the assessment of the infrastructure serving the leisure time spending purposes (19%–32%).

cient), the intermediate position in this ranking was taken by Saska Kępa and Falenica (46%–49%), while the lowest rankings were given the peripheral housing estates: Ursynów (36%), Bemowo (27%), and Tarchomin (20%). The evaluations of the degree to which the housing estates are equipped with the basic infrastructure show a high Spearman's rank correlation with all the six indicators characterising the significance of commuting in the time budget of the inhabitants: on the average over the week, during work days, as well as during weekends. The daily average time (minutes) of commuter travels during the weekdays displays correlation of $r_s = -0.93$ with $\alpha = 0.005$, and the share (%) of time devoted to commuting — the correlation of $r_s = 0.92$ with $\alpha = 0.001$.

The structure of the time budget depends also upon the socio-demographical structure of the populations inhabiting the housing estates. This concerns both the weight of the main activities contained in the time budget within a week and the structure of leisure time during work days and weekends as well as holidays. The highest shares of pupils and students (20%–25%) found their reflection in the biggest proportion of time devoted to education among the inhabitants of Sady Żoliborskie and Ursynów (5.5% and 6.5% of the time budget, respectively, as compared to the average of 3.9%). During work days the greatest amount of time is devoted to watching tv as well as reading books and newspapers by the inhabitants of the housing estates with the highest shares of retired persons and pensioners (Falenica, Za Żelazną Bramą).

Within the subset of the peripheral areas a characteristic opposition is represented by Ursynów and Tarchomin, most different with respect to the socio-demographic structure among the estates considered, and at the same time belonging to the very same class of housing estates with respect to proportions of the main kinds of activities carried out during all the days of the week (see Table 2). Thus, in Tarchomin there was the highest share of respondents working in professions connected with trade, transport and other service, as well as blue collar workers (altogether 36.8%), and also of the administration and office clerks (22.4%). The joint share of persons with primary and vocational education in this estate was 40.9%. On the other hand in Ursynów the specialists (49%), and the persons with high school and university education (83.4%) dominated. The data on incomes seem to be little reliable, but, for instance, in Tarchomin only 18.4% of respondents lived in households with relatively high monthly incomes per person, while in Ursynów there were 40.8% of such respondents. These two housing estates feature the greatest differences with respect to the structure of the time budget during weekends. Thus, inhabitants of Ursynów devote during such days more time to the activities of free choice, to external occupations and commuting, while inhabitants of Tarchomin — to various domestic occupations, education and physiological activities. The structure of leisure time is also different. The persons inhabiting Ursynów devote more time to theatre performances or concerts, to meeting friends, walking, religious

practices, outings, reading books and periodicals, listening to the radio and music. On the other hand the inhabitants of Tarchomin spend more of their leisure time on watching tv or video, passive resting and various hobbies during the weekends and holidays.

Table 2

The structure of leisure time on weekends of the inhabitants of Ursynów and Tarchomin

Activities	Ursynów			Tarchomin		
	Frequency in %	Average total time in hr min	Share in time budget in %	Frequency in %	Average total time in hr min	Share in time budget in %
Theatre, cinema, concerts	21.4	2.20	2.10	14.3	2.15	1.3
Meeting friends	57.1	3.37	8.60	35.7	4.03	6.0
Walking	71.4	1.45	5.2	64.3	1.06	2.9
Sports	7.1	1.00	0.3	14.3	1.45	1.0
Religious practices	42.9	1.12	2.1	28.6	1.03	1.2
Outings, excursions	7.1	7.15	2.1	7.1	4.00	1.2
Hobbies	7.1	1.30	0.4	28.6	1.15	1.5
Reading	78.6	1.49	5.9	71.4	0.54	2.7
TV, video	100.0	2.22	9.9	100.0	3.19	13.8
Listening to the music & radio	21.4	2.20	2.1	21.4	1.15	1.2
Passive resting	21.4	0.40	0.6	50.0	1.10	2.4
Other activities	20.6	1.10	1.0	35.7	1.03	1.6

The daily time budget of the urbanites is usually strongly dependent upon the socio-demographic characteristics of the population (*Analiza...*, 1987). Essential significance should, however, also be attached to the location of residence within the urban space. The time budget of the inhabitants of young peripheral housing estates indicates clearly that they have somewhat worse living conditions than persons inhabiting the downtown areas. The decisive factor here is not so much the distance from the centre itself as the degree of development of the estates in terms of basic infrastructure and transport accessibility to other parts of town. These observations would require a further verification through a more detailed analysis of the daily "life path" — the spatial distribution over the space of town of all the activities executed outside of own home, like the one carried out by Kaczmarek (1996) on the example of Łódź.

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