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Time is money and money needs time
A secondary analysis of time-budget data

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1 Introduction

In developing countries where usually a low standard of living exists, people strive for wealth in a material sense. They have to work hard to earn their living and "leisure" in the sense of "spare-time" or "residual time" is only "used" for recreation from work. Social activity is mostly restricted by income. In modern societies however social activity is restricted by income, interests *and* time. It was Benjamin Franklin (1706-1790) first, who stated that "time is money", giving the advice to a young salesman[1]; furthermore the origins of time diaries can be drawn to him[2].

In modern time philosophy it was Soeren Kierkegaard (1813-1855) introducing the term "temporality" whereas Martin Heidegger (1889-1976) gave a fixed definition[3]. Contrary to the objective "Newtonian time", "time" was regarded from a more subjective and existentialistic point of view.[4] Bergson (1859-1941) spoke of "temps" in the sense of Newtonian time and "durée".[5] "Durée" means that the same space of time measured (for example per minutes) might be experienced differently by individuals depending on the importance of the experience. A beautiful day, for example, might pass away very quickly, whereas two hours of boredom might seem to pass away never.

From a sociological point of view Emile Durkheim (1858-1917) introduced the concept of social time stressing the idea of time which is no longer individual but shared by members of the same group of civilisation. This concept was developed further by Pitirim A. Sorokin (1889-1968) and Robert K. Merton (1910-2003) in their famous study of "social time" in 1937.[6] Nobert Elias (1897-1990) postulated the temporal discipline as a result of the process of civilization[7].

Time has become a valuable resource, but contrary to money, you can neither "save" nor "spend" time. The individual's supply of time is limited to one's life respectively to

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[1] See Prahl, Hans-Werner (2002), p. 21.

[2] See Bevans, G. (1913), p. 10.

[3] Heidegger, Martin (1927/1993), S. 217: "Zeitlichkeit enthüllt sich als der Sinn der eigentlichen Sorge" [kursiv im Original]

[4] See Zimmerli, Walter Ch./Sandbothe, Mike (1993), p. 19.

[5] See Wendorff, Rudolf (1980), p. 431.

[6] See: Sorokin, Pitirim/Merton, Robert K. (1937), p. 615-629.

[7] Elias, Norbert (1988), S. 81.

24 hours a day.[8] The more possibilities to spend time exist and the more hours people work, the more valuable appears time on the one side.[9] On the other side, in times of high unemployment, which is currently characteristic for modern societies, work seems to become a status symbol. "Time earners are suspect."[10]

Different social circumstances lead to better or worse circumstances of living, defined as "inequalities". Indicators for inequalities in society are for example education, sex, income or nationality.[11] Inequalities cannot longer be identified only by indicators like income and education. Furthermore "new inequalities" come up between "men and women", "young and old", "employed and unemployed", "time-rich and time-poor". Additionally, interests are not random and can be considered as influenced by social aspects and individual desires. Because of empirical reasons interests cannot be analysed in detail when we speak of inequalities. We refer to differences in income and leisure-time of social groups. Social activity in leisure-time is therefore restricted by time *and* money. As the importance of time as an economic resource is growing[12], we concentrate on the analysis of inequalities concerning leisure-time and income. Therefore questions concerning "leisure-time-budgets" and "leisure-time-patterns" arise. Moreover we assume that income groups differ in their leisure activities.[13]

Additionally not only the monetary budget, but also the field of work has to be considered in order to analyse the relation between work and leisure activities. Differences in income and time (at the macro level) are to be explained by individual behaviour on the micro level.[14]

Time-budget data of the Federal Statistical Office Germany are used to analyse the question "How do people with different income spend their leisure time?" We look at "contents" and "time structure" (duration and point of time), whereas we concentrate on

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[8] As Converse (1968: 43) remarks, there is no human being, who is owner of more time than any other human being during the same period.

[9] Concerning „time" in an economic sense, see for example: Winston, Gordon C. (1982),

[10] See Adam, Konrad (1989), p. 1-2.

[11] See for example: Schimank, Uwe (2000), p. 10

[12] See for example: Becker, Gary S. (1965), p. 493-517.

[13] See also: Linder, Staffan B. (1970), p. 79: High-earners tend to "simultaneous consumption" or to "successive consumption" to save time.

[14] See: Hennen, Manfred/Springer, Elisabeth (1996), p. 16.

primary activities. At first income groups are related to the categories of "leisure time" in general with regards to socio-demographic variables. Secondly income groups are analysed concerning leisure-activities and temporal patterns. Based upon univariate and bivariate analysis, we try to generate a kind of typology using cluster analysis.

2 A time-budget analysis with Data of the Federal Statistical Office Germany 2001/02

2.1 Time budget data as an manifold research tool

"[..] the phrase 'time budget' has arisen because time, like money, is a resource that is continually being allocated by the individual […]. Like money, time is thought of as being spent, saved, invested, or wasted"[15]. Contrary to common opinion (see above), the time budget analysis as a research tool assumes that "time" can be considered literally like money as a quantitative resource. For this reason people are able to collect time-budgets as they collect financial budgets; the latter can be identified as the earliest forms of time-budget-studies[16].

Whereas in many countries time budget analysis studies are habitually used to analyse the population's spectrum of daily activities (including leisure activities), in Germany the importance of this method comes up with the budget studies of the Federal Statistical Office Germany in 1991/92 and 2001/02. We concentrate on the actual study in 2001/02. The whole spectrum of daily activities was collected on three days (two week-days and one day at the week-end) from members of German households at the age of 10 years or older. The target population implied therefore private households in Germany located at their first domicile, where the person to whom one relates most closely must have been German. The sample consisted of about 34.000 diaries respectively 12.000 persons.

The intention of the diary method is to collect the spectrum of activities during a 24-hour-day by the individuals themselves. The participants were asked to fill out a diary structured by 15-minutes-intervals. There has been the possibility to differentiate between primary and secondary activities, to give information about the social and local

[15] Converse, Philip E. (1968), p. 48.

[16] See: Converse, Philip E. (1968), p. 43.

context. Consequently the researcher is able to find out with *whom* (social context respectively family context) and *where* the activity took place.

Contrary to "yesterday-interviews" the diary method enables the participants to write down the activities in their own words which are recoded into an activity scheme (of about 220 categories) afterwards. In comparison to the yesterday-interview the diary method implies some important advantages: The documentation in one's own words enables the researcher to standardize activities ex post into categories. Additionally parallel activities can be documented as primary or secondary activities. Furthermore the diaries give information about the *point* of time and the *frequency* of time. Usually all members of a household (who are about 10 years and older) fill out diaries on two or three days.[17] As the participants of time-budget studies are asked to document their activity spectrum chronologically, the problem of "social desirability" (which is characteristic for conventional survey studies) can be reduced.[18] There are also some disadvantages of diaries. This method requires the capacity to write down the daily activity spectrum in one's own words correctly. Discipline and "time" to fill out the diary are therefore needed. Finally this kind of method depends on the participants' motivation.[19] Furthermore, the cost argument can be mentioned as negative.[20]

Summing up the diary method can be considered as the main collecting method of time-budgets. Robinson (1985) concludes that "[…] [t]he burden of evidence clearly points to the strong likelihood that time diaries are the only viable method of obtaining valid and reliable data on activities".[21]

[17] One day is usually Sunday or Saturday.

[18] See for example: Ehling, Manfred (1991), p. 34f.

[19] See for example: Weber, Klaus (1970), p. 66.

[20] See: Ehling, Manfred (1991), p. 35.

[21] Robinson, John P. (1985), p. 60.

2.2 Theoretical Frame: The relations between "leisure-time-budget" and income

2.2.1 The quantitative dimension between "leisure-time-budget" and income

The rising productivity in economic life has become part of people's "spare time" including housework, family obligations, recreation time and "pure" leisure. This phenomena was discussed by Linder (1970) in "The harried Leisure Class", but also Gary Becker (1965) Gronau (1977) and Mincer (1962) analysed "spare time" in the sense of "consumption time" in an economic way. They took into account, that consuming goods takes time similar to the process of producing goods.[22] If income is growing with more hours spent at work, people would need more time spending their money and consuming these goods ("Linder-Paradox").[23] A nice holiday in South Africa, for example, takes a lot of *money* and *leisure-time*. Linder has already stated in 1970 with regards to industrial societies: "The leisure problem of the economic type […] probably exists only in the imagination of those who are unaware that consumption takes time."[24]

Linder differentiates between "working time", "time for personal work", "consumption time" and "time for cultivation" or "cultural time". We concentrate on "leisure" defined as "consumption time *and* time for cultivation"[25]. In a negative sense "leisure is defined as time, which is left after subtracting working time, obligation time and recreation time from the daily time budget of 24 hours. This definition - putting leisure in contrast to working time and time for regeneration - is mostly used in empirical social research.[26] It fits to (secondary) time-budget analysis because of the categorisation of leisure activities (in analogy to conventional time-budget studies)[27] and implies therefore the

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[22] See: Becker, Gary S. (1965) ;Linder, Staffan B. (1970), p. 493-517; Gronau, Reuben (1977), p. 1099-1123; Mincer, Jacob (1962), p. 63-105.

[23] See. Linder, Staffan B. (1970), p. 1ff.

[24] Linder, Staffan B., p. 11.

[25] For consumption time consumption goods play a central role, but only a more unimportant role for cultivation time. See Linder, Staffan B. (1970), p. 14.

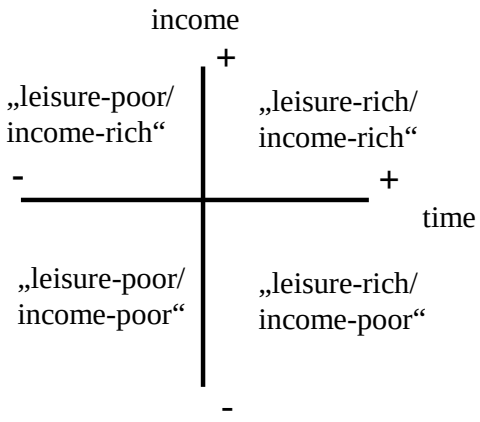
[26] See f.e. Nahrstedt, Wolfgang (1972), p. 47; Lamprecht, Markus/Stamm, Hanspeter (1994), p. 33f. and 39f.

[27] See for example: Ehling, Manfred, u.a. (2001), p. 435; European Commission (Ed.) (2003), p. 2.

activities “social life and entertainment”, “sports”, “hobbies and games” and time spent with “mass media”.[28]

We focus on the working population in a wider sense, also including the unemployed and parents, who are not working because they care for their children. Looking at income groups, high-earners’ action is primarily limited by time, because generally they spend more time working than average. They are defined as “time-poor/income-rich”. A professor, for example, spends more time working (f. e. reading, teaching, researching) in general than a teacher of a primary school. Contrary to this, it can be assumed, that low-earners possess more “free time” than high-earners in general, but their activities are more limited by income. They are defined as “time-rich/income-poor”. People who are suffering unemployment for example are “time rich” but “income poor”. Furthermore, there are people who are “rich” respectively “poor” concerning free time and income. People who are rich in income and time are maybe heirs (“time-rich/income-rich”); a mother, bringing up children alone, might be characterised as poor of time and income (“time-poor/income-poor”). The following Figure 1 shows the relations between “time” and “income” as a fourfold-matrix.

Figure 1: Time and money: A fourfold matrix



28 We have to consider the theoretical problems of the “leisure-phenomena”, which has been discussed often. “Leisure” cannot be defined completely in an “objective” sense, it implies also a “subjective” dimension. That means for example: Some people consider cooking as “leisure-activity”, whereas others consider “cooking” as obligation or as work (cooks). As we use time-budget data for our analysis, we have to “work” with the underlying definition of leisure, but we are aware of the theoretical problems of this definition. More elaborated theoretical studies already exist in the Anglo-American literature. See for example: Kelly, John R. (1987); Elias, Norbert/Dunning, Eric (1986/2003), differentiates between activities with respect to various degrees of formalisation.

We assume that time-budgets of leisure activities on a quantitative and qualitative level differ between the four groups above. These groups can be described by using socio-demographic variables like sex, education, age and type of household. On the one side, there are more and more people belonging to the "time-poor/high earners". As for these people "leisure" is a scarce resource (which has a high price seen as opportunity costs), there are strategies to "accelerate consumption" during "leisure-time". Linder (1970) stated three forms of acceleration: firstly, the consumption of more expensive goods, secondly, the "simultaneous consumption"[29], which means that more than one "good" or "activity" is consumed. Thirdly, there is the possibility of "successive consumption" in the meaning that the activity is spent on a shorter period of time.[30] You can also examine different points in time. With regards to a qualitative dimension in a wider sense, concepts like "time of one's own" (Nowotny 1993) and "wealth of time" (Rinderspacher 1985) are getting more and more important.

"Weekend-leisure time" for example seems more valuable than "leisure-time" in the evening after a hard day of work. Several small slots of time seem to be less worthy than two hours of unexpected "time free off" on a sunny day.[31] The point of leisure-time and the duration of intervals have been taken into account.

"Time sovereignty" means that one can freely decide whether to work or to enjoy leisure at a decisive point in time. At the spear peak, the so-called time pioneers (Hörning 1990) have realised that "time" just as "material goods" is just as wealthy as the *power* to decide over timing. This small group of employees prefers some kind of flexibility concerning working times (working part-time unconventionally in the late evening or in the early morning f. e.) and leisure-time; they strive for self-decision concerning their individual use of time, and this has to be mentioned as an important point, they accept the material disadvantages which are connected with "time flexibility".[32]

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[29] In Germany primarily the discussion about the "homo simultans" has been discussed. See for example: Geißler, Karlheinz A. (2003), p.47f.

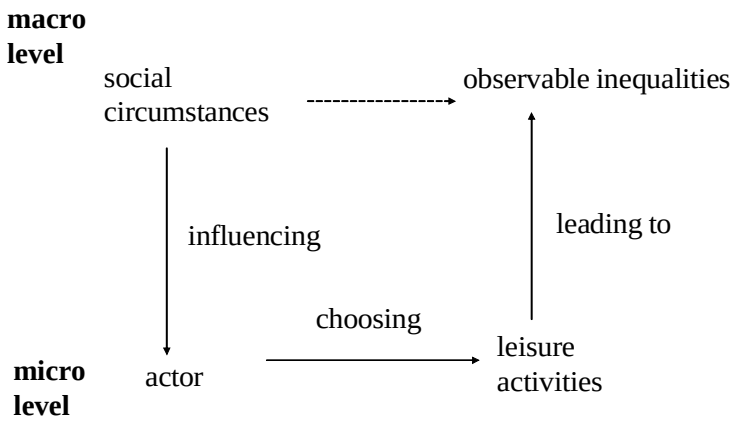
[30] Linder, Staffan B. (1970), p. 79.

[31] See f. e. Garhammer, Manfred (2001), p. 111.

[32] See Hörning, Karl H., u.a. (1990), p. 7. It has to be taken into consideration that time-pioneers belong to a small minority of employees working about 20 up to 30 hours under flexible conditions concerning time. Therefore the group of time pioneers cannot be regarded as representative in ours time budget analysis.

With respect to the underlying data, the question rises, if "time-poor rich-earners" tend to act like time-pioneers as described above. Are they more flexible to decide when leisure should take place? Furthermore we have to go into a more detailed view. The following leisure activities like "social life and entertainment", "sports", "hobbies and games" and time spent with "mass media" have to be analysed separately. It is assumed that the groups above differ concerning their leisure-activities as they differ in their leisure time-budgets.

Figure 2: Analysing social inequalities: A macro-micro-model



From a traditional point of view, one has to take into account a relationship between profession and corresponding leisure activities, which might serve different purposes. If leisure activities are regarded as compensation to work, because working activities and working conditions are seen as frustrating, we speak of the "compensation"-hypothesis. If working activities are seen in a positive sense but conditions are known from experience in a negative sense, activities during leisure time are not very different from working activities ("prolongation"). If people identify themselves with work and working conditions, leisure activities are the same as working activities ("continuation"). If leisure is complementary to work, you spend your leisure time in a more passive way because your work is "active" ("complementation").[33] However some authors state - in contrast to the hypothesis above - that there is no relation between the

[33] See: Vester, Heinz-Günter (1987), p. 40ff.

"content of work" and "leisure activities" ("independence"). They postulate that factors like education, family status, socialisation and religion would be more explanatory to leisure behaviour than the sphere of work.[34] Choosing this perspective we need not exclude adults who are not working currently (like unemployed).

Contemporary research programs concentrate on "life styles" instead of the dichotomy between work and leisure. Life-style research programs assume that the way of life (leisure *and* work included) is determined on a vertical dimension (by variables like income, education, age and gender) but also by latent variables (like interests, motivations and attitudes) whereas the latter are difficult to measure. As a result, leisure-activities cannot be analysed with respect to the sphere of work in a strict sense.[35]

3 The relation of time and money - the main results

The groups of the four-fold matrix above (Figure 1) have to be identified at the beginning. The underlying sample consists of fulltime-employees, part time-employees, unemployed and mothers or fathers who had been set free to bring up their children.[36] Furthermore we define the categorical variable "leisure-time-budget" (on the basis of the average value (274 min.) with the three categories "low", "middle" and "high" and the categorical variable "income budget" with three categories "low income", "middle income" and "high income".

It has to be mentioned before that the unit of analysis is a single diary-day which is conventionally used for analysis in time-budget research.[37] As a result the individual variable "income" is combined with "time-budgets" on three days.

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[34] See for example Lamprecht, Markus/Stamm, Hanspeter (1994), p.231; Prahl, Hans-Werner (2002), p. 147.

[35] See for example: Prahl, Hans-Werner (2002), p. 328f.

[36] Looking at the income-groups (net income), we have identified a 14 % amount of missing values. We exclude the missing values from our analysis, assuming that missing data are not systematic. With respect to the income variable we are aware, that this might be connected with some problems concerning manipulation of the data. See for example Diekmann, Andreas (2002), p. 553.

[37] See for example: Rosenbladt, Bernhard von (1968), p. 63.

3.1.1 Looking at the four-fold-matrix

The “average-owner” of time and income is not of interest for us. We are looking at the “poor” and the “rich” concerning “income” and “leisure. The following cross-table-analysis shows the distribution of the four groups defined (Figure 3).

Figure 3: Groups of interest in regard to time-budget and monetary budget

		kdlrtqd,shl d'oqhl `qx`bshulsx(			rtl
		to sn 04/ l hm+ 'knv (	05/ to sn 2// l hm+'l dchtl (	2// l hm+`nmc l nqd'glfg(	
mds hmbnl d odq l nmsg	knv 'to sn 0///⇊(	781'0018()	0362	0331'0815(	27/6
	l dchtl '0/// to sn 114/⇊(	1124	2545	22/7	8088
	glfg'114/⇊ `nmc l nqd(	578'723(	0/16	801'0172(	1517
rtl		2705	5045	4551	04523
)tmvdlfgsdc c`s`hmaq`bjdsr					

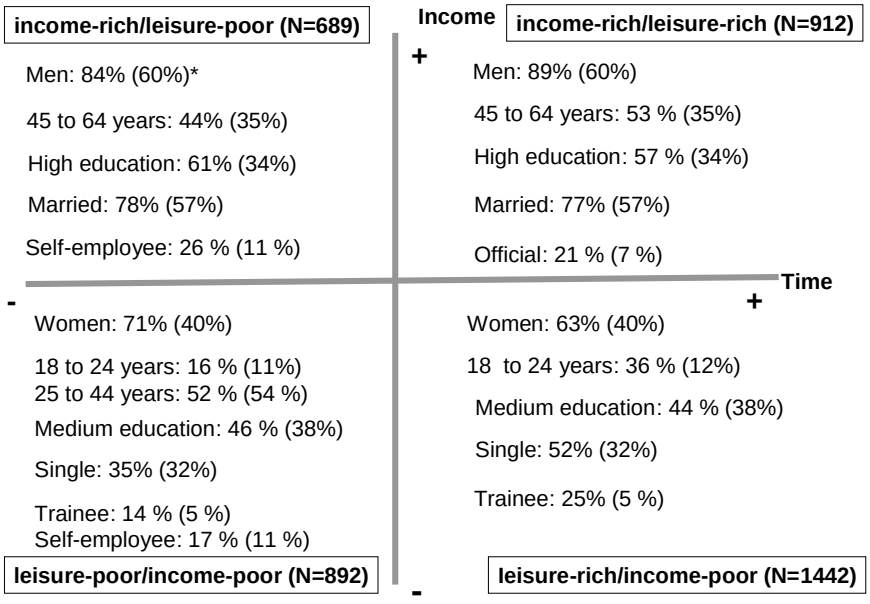
Looking at the four groups on the dimensions “time” and “net income” with respect to the variables “sex”, “age”, “education” and “family status” we have generated the following pattern (univariate analysis) describing the four groups (Figure 4). They cannot be analysed only with respect to income on a vertical dimension.[38] Additionally there are so called “new inequalities”[39] on a horizontal dimension. This does not mean, however, that “conventional” inequalities become obsolete; the latter are getting more complex by introducing horizontal dimensions, for example concerning leisure-time.[40]

[38] The idea of more complex inequalities already exists in classical works. Theodor Geiger (1891-1952) spoke of differences of mentality. See: Geiger, Theodor (1987/1932), p.77ff. ; Max Weber (1864-1920) introduced the concept of “Lebensführung”. See: Weber, Max (1999/1922), p. 197f.) and Georg Simmel (1858-1918) created the term “style of life” (“Lebensstil”). See: Simmel, Georg (1900), p. 455-554.

[39] The term „new inequality“ seems misleading, rising the idea that the conventional inequalities would have been disappeared, which is not true. See Lamprecht, Markus/Stamm, Hanspeter (1994), p. 203.

[40] See f. e. Lamprecht, Markus/Stamm, Hanspeter (1994), p. 197-206.

Figure 4: Inequalities concerning time- and monetary budget (unit of analysis: diary day)



*Explanation: Each fold gives information about criteria which are overrepresented compared to the target sample.

With respect to income women are primarily part of the income-poor group. Therefore there are not only inequalities in income; they exist furthermore between men and women. Looking at the time dimension, we have to differentiate between "income-poor" who are also "leisure-poor" and "income-poor" who can be described as "leisure-rich". Concentrating on women the "leisure-poor" can be described as rather middle aged, the "leisure-rich" can be characterized as young (up to 25 years) with medium education. The additional "inequality" concerning "leisure-time" budget might be a result of additional family obligations (child care; housework) or different professional status (high percentage of self-employees) which may change during the life-cycle.

3.1.2 Activity spectrum of different income- and leisure-time-groups

The next aspect deals with leisure activities (in a more qualitative sense) of the groups above. The following activities are analysed: social activity and entertainment, relaxing, sports activities (indoor and outdoor), hobbies/games and mass media. We concentrate on primary activities (Figure 5).

Figure 5: Importance of leisure activities

	leisure-time-budget	social acitivity and entertain-ment	relaxing	sports and nature	hobbies and games	mass media
arithmetic mean/%		HA (min.)	HA (min.)	HA (min.)	HA (min.)	HA (min.)
	274	80	12	24	17	140
(n=15635)	100%	29%	4%	9%	6%	51%
leisure-poor/income-poor (n=892)	93	25	5	5	3	54
	100%	27%	5%	5%	3%	58%
leisure-rich/income-poor (n=1442)	439	148	21	39	35	195
	100%	34%	5%	9%	8%	44%
leisure-poor/income-rich (n=689)	95	23	4	5	3	60
	100%	24%	4%	5%	3%	63%
leisure-rich/income-rich (n=912)	456	136	19	57	32	211
	100%	30%	4%	13%	7%	46%

Comparing the activity spectrum *within* groups we have to face absolute values (arithmetic mean/ minutes). In general, "mass media" and "social activity and entertainment" can be regarded as "time-dominant" activities for all groups. This result is not really surprising.[41] Comparing the activities *between* the four groups, we have to look at percents (defined as share of the whole spectrum of leisure activities).

The share of "social activity and entertainment" in comparison to the whole activity spectrum exceeds the average (29 %) with 34 %, looking at the "leisure-rich/income-poor". "Social and entertainment"-activities can be regarded in the sense of "cultivation time" corresponding to Linder (1970). Cultivation time-activities can be described as less goods-intensive ("low-cost situation")[42] than consumption time-activities (f. e. some kind of sport activities).

The share of mass media activities in comparison to the whole activity spectrum can be identified as more than average by "leisure-poor/income-rich", spending 63 % of their

[41] See f. e. Ridder, Christa-Maria, u.a. (2002), p. 73.

[42] The category "social activity and entertainment" comprises the activities social interactions like telephone calls, visiting friends and relatives, family celebrations, and just talking but also activities like going out to places like cinema, theatre, museum, sport events, disco and so on. It can be assumed that the first kind of activities are of higher importance for the daily leisure-time than the latter.

"leisure-time-budget" with mass media activities (average: 51 %). This tendency is also observed looking at "leisure-poor/income-poor" (58 %). As the consumption of media can be seen as a "low-cost-decision"[43] the result is not really surprising. Mass media consumption might bring together members of different "social classes" in a wider sense.[44] But you have to consider that there is neither a hint to the *content* of media nor to the type of media (press, television, radio).[45]

Whereas the traditional theory of social inequalities faces income, education and status as indicators of "success" in a wider sense, we concentrate on differences in income (looking at three income categories). Looking at the Linder-Hypothesis, we intend to draw conclusions about the leisure-time-budget of different income-groups. This means surely simplification. Looking at the leisure-poor in general, there is a tendency of using mass media more than the average. In contrast, the leisure-rich do not prefer mass media to the same relation as the leisure-poor; the leisure-rich/income-rich prefer sports more than the average (9%) with 13 %. Sports activities might be described rather as involving than media use.

Generally regarding at different status groups there are more differences ***within*** "activity categories" than ***between*** activity categories. As Bourdieu (1984) has found observing the French society, there are refined differences in tastes between status groups (for example concerning reading matter, television programs, painting)[46], which cannot be analysed with the categorization of time-budget data.

3.1.3 "Temporal patterns" concerning Leisure-time and Activities

Considering different "time qualities" we have to consider the point of time. We look at the following time intervals: 6 to 12 (morning); 12 to 18 (daily); 18 to 24 (evening); 24 to 6 (night) neglecting the interval "night".

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[43] See for example: Jäckel, Michael (1992), Jäckel, Michael (2003),

[44] See: Scheuch, Erwin K. (1972), p. 150; Jäckel, Michael (1996), p. 150.

[45] The category „mass media comprises the media newspapers, books, and magazines"; television and video, radio and music in general and computer.

[46] See: Bourdieu, Pierre (1984), p.822-851.

Figure 6: Leisure-Time Intervals of Different Income/Leisure-Groups

	kdhrt qd, shl d, at cf ds	L nqnhmf 'L (	C`hkx 'C(	Dudnhmf 'D(	Mhf gs 'M(
	163	14	7/	047	0/
R`l okd m<04524	0/ / $	8$	18$	47$	3$
kdhrt qd, onnq hmbnl d,	82	6	1/	52	1
onnq 'm<781(	0/ / $	7$	11$	57$	1$
kdhrt qd, qhbg.hmbnl d,	328	3/	043	108	14
onnq 'm<0331(	0/ / $	8$	24$	4/ $	5$
kdhrt qd, onnq hmbnl d,	84	7	03	6/	1
qhbg 'm<578(	0/ / $	8$	04$	63$	1$
kdhrt qd, qhbg.hmbnl d,	345	5/	05/	107	08
qhbg 'm<801(	0/ / $	02$	24$	37$	3$

Figure 6 shows that the analysed groups differ in their leisure-time distribution. The leisure-rich enjoy more daily leisure-activities (35 %; average: 29 %) whereas the leisure-poor spend most of their leisure-activities in the evening (68 %; 74 %; average: 58 %). With respect to differences in income, the income-rich/leisure-poor spend more leisure-activities in the evening (74%) than during the day (15%) in comparison to the income-poor/leisure poor (evening-leisure: 68 %; daily-leisure: 22 %). It can be supposed that the latter might belong to the unemployed, whose leisure-time-budget is less restricted concerning the point of time.

In the morning leisure plays a more important role to the leisure-rich/income-rich, spending 13 % of their leisure-time in the morning (average: 9 %). It can be presumed, that this group is time-privileged in two ways. First, they are more flexible to decide on the "leisure-time-budget" concerning point in time (qualitative dimension), second they are owners of the most extended time-budget in leisure.

With regards to leisure-activities, the results can be differentiated as follows. We focus on the activities "social activity and entertainment", "sports" and "mass media use".

Figure 7: Intervals in Time with respect to different Activities

	kdhrt qd, slh d at cf ds	**rnbhì k` bshuhsx ` mc dmsdqs` hml dms**			**ronqsr**			**l ` rr l dchì**		
		L	**C**	**D**	**L**	**C**	**D**	**L**	**C**	**D**
	163	7	17	28	3	02	6	0/	15	0//
R`l okd m<04524	0//$	2$	0/$	03$	0$	4$	2$	3$	8$	25$
kdhrt qd,onnq hmbnl d,	82	2	7	02	0	1	1	2	4	34
onnq'm<781(	0//$	3$	8$	03$	0$	2$	1$	2$	5$	37$
kdhrt qd,qhbg.hmbnl d,	328	02	4/	58	5	14	6	04	4/	012
onnq'm<0331(	0//$	2$	00$	05$	0$	5$	1$	3$	00$	17$
kdhrt qd,onnq,hmbnl d,	84	2	5	02	0	0	2	3	3	40
qhbg 'm<578(	0//$	2$	6$	03$	0$	1$	2$	3$	3$	43$
kdhrt qd,qhbg.hmbnl d,	345	03	4/	52	02	22	0/	12	41	015
qhbg 'm<801(	0//$	2$	00$	03$	2$	6$	1$	4$	00$	17$

Preferences cannot be measured directly by looking at the time-budget in general.[47] If an individual spent much time watching television for example, this does not mean automatically, that this person has a high preference for watching television. Time-budgets might only give some hints for interpretations.

The highest difference can be observed evidently looking at mass media use in the evening. Whereas the leisure-rich spend only 28 % of their leisure-time-budget with mass media use in the evening, the leisure-poor use more than the average of their leisure-time-budget with this activity. The leisure-poor/income-rich for example spend 54 % of their leisure-time-budget with mass media use in the evening (average: 36 %). Mass media use can be seen as highly preferred by leisure-poor; differences in income however do not seem to play an important role.

The following question deals with the distribution of leisure-time on weekdays and weekend-days. Conventionally, people are less time-restricted on Saturdays and Sundays than on weekdays. There might be some exceptions when we regard time-pioneers who are more flexible. But time-pioneers are not yet seen as a representative group in general. Looking at figure 8 we can identify the following differences between the four groups above.

[47] See f. e. Rosenbladt, Bernhard von (1968), p. 60.

Figure 8: Leisure-time on Weekdays and Weekend

		leisure-time budget	social activity and entertain-ment	relaxing	sports	hobbies and games	mass media
	arithmetic mean/ %	MA (min.)	MA (min.)	MA (min.)	MA (min.)	MA (min.)	MA (min.)
sample	weekdays n=10639	226	63	10	18	13	122
		100%	28%	4%	8%	6%	54%
	weekend n=4996	375	117	16	37	26	179
		100%	31%	4%	10%	7%	48%
leisure-poor/income-poor	weekdays n=759	92	25	5	5	3	56
		100%	27%	5%	5%	3%	61%
	weekend (n=133)	96	24	7	10	6	48
		100%	25%	8%	10%	6%	50%
leisure-rich/income-poor	weekdays (n=657)	413	138	22	35	31	187
		100%	33%	5%	8%	7%	45%
	weekend (n=785)	461	156	21	43	38	202
		100%	34%	4%	9%	8%	44%
leisure-poor/income-rich	weekdays (n=609)	95	22	3	6	2	61
		100%	23%	4%	6%	3%	64%
	weekend (n=80)	101	28	6	3	7	58
		100%	28%	6%	3%	6%	57%
leisure-rich/income-rich	weekdays (n=376)	429	126	17	52	32	201
		100%	29%	4%	12%	7%	47%
	weekend (n=536)	476	144	20	61	33	217
		100%	30%	4%	13%	7%	46%

On the average the weekend-leisure-time-budget (375 minutes/ more than 6 hours) exceeds the weekly leisure-time-budgets (226 minutes; about 4 hours) with about 150 minutes. Looking at the four income/leisure-groups there are great differences concerning leisure-time-budgets on weekdays and weekend. There is only a significant difference (about 50 minutes) between the weekly leisure-time-budget and the leisure-time-budget on Saturday or Sunday concerning the leisure-rich. For the leisure-poor there is not much more leisure-time left on Sundays or Saturdays. This might hint to the fact, that the separation between working- and leisure-time with respect to the week-cycle is more and more declining. Primarily people with high education have to be flexible in their timing in addition to their job. On the other side, there are leisure-poor-income-poor who are discriminated on two dimensions. This group, who can be characterised by a lower education, might have more than one low-paid job (with unusual working hours) and additionally more obligations like housework and family work.

In addition to the defined target groups and their typical patterns of time-use we finally test a more complex method which leads to the opportunity to generate some “types” of

"leisure and income-consumers". It has to be mentioned that the unit of analysis is (unconventionally) the diary day and not the individual person.

3.1.4 Cluster-Analysis – a three-cluster solution

Cluster analysis enables us to look simultaneously at a bundle of variables. The application of cluster analysis serves to generate homogeneous groups.[48] For practical reasons we use the two-step cluster analysis which enables us to cope with large sample sizes. Furthermore this method is capable of handling categorical and continuous variables simultaneously.[49]

Referring to the results above, we assume that the four groups of interest differentiate concerning sex, income, age, education, family-status, professional status and leisure-time-budget, whereas the latter is further differentiated with respect to leisure-activities and point of leisure-time. Based upon the 15 sub-clusters found in the first step, three clusters are finally generated (automatically).[50]

Cluster one - **"Elderly established with more flexibility in leisure-time and choice of leisure-activities"**; (n=2113/ 50 % of the sample): Cluster one includes mostly men (86 %) between 45 and 65 years ("established adults") with high education (66 %) and marriage status (85 %). Their professional-status correlates with their education: this cluster includes more than the average officials and self-employed (61 %). They belong to the high-earners with more flexibility concerning leisure-time and choice of activities. They prefer leisure-activities in the morning more than the average (39 minutes/ average: 33 minutes) and sports (36 minutes; average: 30 minutes). This cluster might include the small group of "time pioneers" who can be characterised as flexible in spending time and money.

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[48] See f. e. Backhaus, Klaus, u.a. (2000), p. 329f.

[49] In the first step there is a quick sequential cluster method applied to the large sample to form sub-clusters. In the second step the sub-clusters which result from the first step are taken as input and are grouped into a smaller number of clusters. SPSS uses the agglomerative hierarchical clustering method primarily, because it works well with the auto-cluster procedure. In order to handle continuous and categorical variables we have used the log-likelihood distance measure. See: SPSS (2001): The SPSS TwoStep Cluster Component. A scalable component enabling more efficient customer segmentation. White paper – technical report p. 2-8, and the references which are given on p. 8.

[50] Discriminant analysis to test the validity of the cluster analysis has shown, that there are two significant discriminant functions whereas the first explains 93, 1 % of the variance. 87, 4 % of the predicted grouped cases were classified correctly.

Cluster two – **"The average woman: middle-aged with medium education, married, and income- and leisure-poor"** (n=2198/ 42, 5 % of the sample): This cluster includes 81 % women, who are more than the average between 25 and 45 years old (61 %) with medium education (47 %). They are all married whereas they work mostly as employees (61 %). This cluster contains also a relatively high percentage of female workers (17 %). It can be supposed, that there is a high number of part time-working women with children in this cluster. The leisure spectrum might be restricted by the low income-budget and temporal restrictions. Looking at the activity spectrum the duration of all activities except "relaxing" is less than the average.

Cluster three - **"Not-yet established young adults who are leisure-rich but income-poor";** (n=856/ 16 % of the sample): Cluster two includes mostly young adults between 18 and 25 years (78 %) with medium education (50 %), who are not yet established in their profession (trainee: 77 %) and situation in life. They are not married (100 %) and they can be described as income-poor/leisure-rich. They prefer more than the average "social activity and entertainment" (146 minutes; average: 103 minutes), "mass media use" (156 minutes; average: 143 minutes) and "hobbies and games" (30 minutes; average: 19 minutes). They prefer leisure in the afternoon (121 minutes; average: 104 minutes) and in the evening (188 minutes; average: 159). Their choice of activities might be restricted by their low income-budget.

Looking at the income- and leisure poor pattern there seems to be evidence for our hypothesis that the "time dimension" besides the material dimension has to be taken into account when exploring inequalities in life styles. The income-poor as a discriminated group can be secondly divided into leisure- rich and leisure-poor which are heterogeneous in their structure and activity spectrum.

The following solution is just the first step to the exploration of different life styles and is definitely a broad classification. Further analyses are necessary to get more specified results, but this requires different method of analyses. Motives and interests which are of high interest in life style research were not explicitly collected in the German time-budget study and can therefore only be implicitly taken into consideration.

4 Conclusion

Usually inequalities of modern societies are defined as inequalities with regards to "hard" variables like income, education and status. Besides there are research programs analysing life styles with respect to a complex bundle of variables also including "latent" variables like interests, preferences and motivation. They cannot be analysed explicitly by the underlying time-budget data and can therefore only be taken into consideration implicitly.

"Time" as a valuable resource is often neglected in social research facing inequalities, but is of high interest in modern times. It was Linder (1970) stressing that leisure-time is necessarily used to enjoy one's material wealth. People who are rich in a material sense are sometimes "poor" concerning their leisure-time-budget and therefore unsatisfied with life. On the other side there are "time-wealthy" people whose "temporal destiny" is not of a voluntary kind. They have lost their job in times of high unemployment for example and cannot enjoy their leisure-time at all because it seems worthless to them. Concentrating on time, we state that "leisure-time" is more than a quantity as money which you can save and spend whenever you want. "Temporal wealth" also includes the power to decide over time-use - "time-flexibility".

Concentrating on "income" and "leisure-time" we intended to identify temporal and monetary inequalities – with respect to leisure-time-budget, the corresponding activity spectrum and temporal flexibility. The underlying method – a time-budget analysis - is adequate to concentrate primarily on the temporal aspects. Time-budget studies are often criticized because of their descriptive respectively univariate character.[51] We have therefore tried to go one step further using cluster analysis as a tool of multivariate research. But we are aware that the three-cluster-solution can only be a first step in a multivariate research process.

It could be shown, that whereas the "old" inequalities – between men and women, old and young, well-educated and low-educated - persist, "new" inequalities are added when we look at time-budgets and the power to decide over timing. Whereas the first classification has led to the identification of four groups on the dimensions "leisure" and "income" the cluster analysis additionally included the leisure activities and time

[51] See for example: Merz, Joachim (1990).

intervals. As a result there is evidence for another detail: the privileged in a material and temporal sense are elderly well-educated male adults who are married. They dispose not only a great money budget but also over time and the freedom to choose leisure-activities and the point of timing. In contrast to the privileged in time and wealth there are underprivileged groups in material wealth and leisure-time. Furthermore to the income- and leisure-poor pattern there seems to be evidence for a second group which can be described as leisure-time rich and income-poor. The “old” inequalities are therefore “enriched” by the dimension of time.

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