

# Microeconomic Consumption Theory and Individual Media Use: Empirical Evidence from Germany

Wolfgang Seufert and Maria Ehrenberg

Friedrich Schiller University Jena and University of Cologne

**ABSTRACT** This study applies microeconomic consumption theory to media use in order to explain individual media time allocation decisions in order to separate long-term and short-term influences. Using data from German media audience research, the study finds a strong influence of the short-term influence of time availability on the duration of total and individual electronic media use, primarily within leisure time and semi-disposable time. The same results were not found for print media, leading the authors to speculate that differences may be indicative of different substitution effects between electronic and print media.

**KEY WORDS:** audiences, audience research, time use, consumption theory

---

Considering the results of applied audience research, the *aggregated demand* for a certain type of media (daily reach of all radio programs, circulation of all newspapers) or even a special type of content category (news or a feature film on television) is fairly predictable. In contrast, however, the demand for a single media product (rating of a special television program, circulation of a newspaper title at a certain day) and its *audience structure* seem to be rather unpredictable. These findings can be explained by the fact that *individual media use* is to a high degree context-driven (With whom I am? Where I am?). Existing individual preferences for different types of media or content categories are often “hidden” by these short-term influence factors (McQuail 1997).

Common theories which aim to explain individual media use behavior differ in basic assumptions (Webster, Phalen & Lichty, 2000). The scientific discourse is dominated by the following two dichotomies:

Copyright © 2007 Journal of Media Business Studies. Wolfgang Seufert and Maria Ehrenberg, “Microeconomic Consumption Theory and Individual Media Use: Empirical Evidence from Germany,” 4(3):21-39 (2007).

- Is individual media use more determined by structural factors (social and cultural background) or by individual aspects (psychological needs or habits)?
- Are the decisions on the use or non-use of certain media or content categories made in an active, conscious and rational matter (Uses and Gratifications-Approach and economic approaches) or are they passive, unconscious and habitual or depending on mood (Selective Exposure-Approach)?

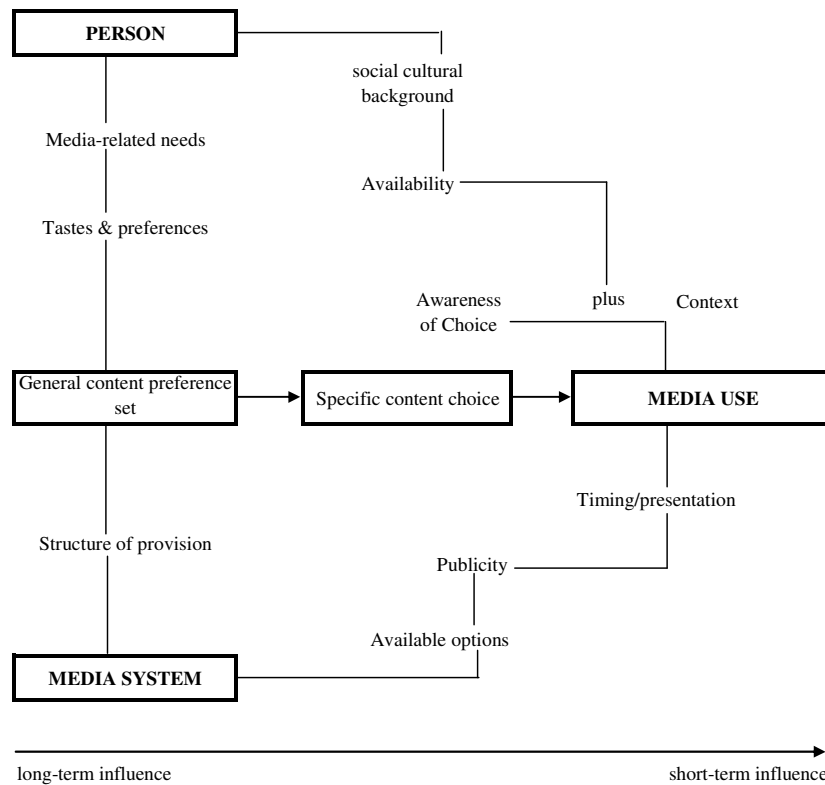
A heuristic and pragmatic model by McQuail (1997) integrates these different attempts to explain individual media use behavior. It comprises three basic components (Figure 1):

- Actual individual media use results from an interrelation between *audience factors* that originate from the individuals and *media side factors* that come from media system and media content.
- There are factors with a *long-term* influence on preferences for single media and certain content categories, and there are factors that influence media use behavior only for a *short time*.
- Long-term influencing factors on the audience side are the *social and cultural background, media-related needs, personal tastes and preferences*. Short-term context factors are *sociality and location of use*. In between there are influencing factors with medium-term effects like *leisure habits, availability and awareness of choice*.

The idea of separating long-term from short-term influencing factors follows a structural model by Weibull (1985) that distinguishes between media orientation as general preference and media exposure. This model matches two important empirical results of audience research, particularly those of television research:

- Leisure habits and different opportunities to use a certain media are reflected in cyclical fluctuations of aggregated audience demand during a year, a week or a day.
- Decisions on media use seem to be hierarchical: At first, a decision on a certain medium is made (television viewing or book reading), then a decision for a certain content category is made (television genre, type of book), and after that a final decision is made on the use of a particular medium from the range available at that time and place (certain television program, certain author).

Figure 1: The Integrated Model of the Process of Media Choice by McQuail



Source: McQuail 1997: 77

### ***Implications for Empirical Audience Research***

A number of implications can be drawn for empirical analysis of individual media use behavior:

- It makes sense to examine influencing factors only on the first hierarchical level (the extent or duration of use of certain media) while ignoring content categories in a first stage of investigation.
- Audience analysis of a representative group of persons at a certain time always comprises individuals whose current media use matches their average media use—which is shaped by long-term preferences—as well as individuals who are more influenced by acute short-term context factors. Therefore, the influence of short-term factors will appear more noticeable in groups with similar preferences than in the whole population.

From an economic point of view the *availability of media use* is the most interesting short-term factor to be investigated.

## MICROECONOMIC CONSUMPTION THEORY AND ALLOCATION OF TIME

### *Economic Models of Media Choice*

Besides sociological and socio-psychological theories of media use, an economically founded tradition of modeling audiences has existed since the 1950s. The central attempt is to explain consumer choices between different media offers and their impact on the decisions of media content providers about the degree of media content differentiation (Steiner 1952, Owen, Beebe & Manning, 1979; Owen & Wildman 1992).

The general model of behavior also distinguishes between more or less stable long-term preferences for consumer goods and a short-time situational context, in which the choice is made. The economic models of media choice underlie two basic assumptions (Webster, Phalen & Lichty, 2000):

- First, from the recipient's point of view there are several *types of media content* which have homogeneous product attributes. For these different media content categories on the one hand each person has a stable positive *preference order* whereby one prefers content type A to content type B, content type B to content type C and so on (or has perhaps negative rankings ordering content categories by their degree of rejection). On the other hand it is assumed that several content categories are interchangeable for recipients. If the most valued content is not available, the recipient will also accept second-choice and third-choice media offers.
- Second, the price only plays a minor role in decision-making about media use or even none at all such as "free" media that is financed entirely by advertisement. For this reason the situational context of media choice is only determined by the available range of offered media. Thus, at a price of zero, long-term preferences appear directly in the temporal proportions of used contents.

As a result there is a stable aggregated demand for special content categories or, in particular, for popular common-denominator-content as second-choice solutions. Consequently the practice of risk aversion by providers leads to the copy of successful popular content ("more of the same" strategies) until the market shares of each supplier in this market segment shrink to a point where the provision of "minority content" becomes more profitable.

However, the assumption that at a price of zero the demand for the different content categories is solely determined by stable long-term preferences cannot explain short-term fluctuations in media use. This may be one reason why economic approaches that aim to explain media use behavior have thus far led a shadowy existence within communica-

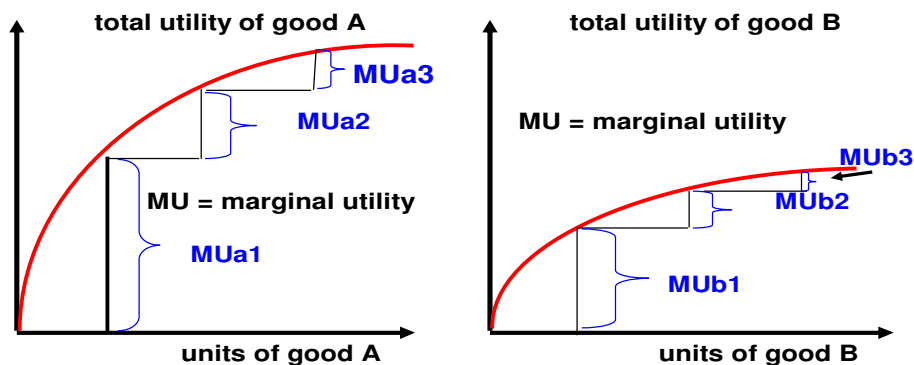
tion science. But this assumption does not hold for all circumstances: it would only be the case if the available time budget is the same for all people and for any time.

### **Microeconomic Consumption Theory**

To illustrate this point, the basic predications of microeconomic consumption theory shall be briefly outlined (Picard 1989):

1. All consumer goods cause individually different benefits and have a diminishing marginal use, i.e. the additional utility of every additional unit of a good (the marginal utility) is lower compared to the one of the previous unit, while the saturation level of each good is different. This idea can be graphically shown by a “marginal utility curve” (Figure 2).

Figure 2: Total and Marginal Utility of Different Goods



2. Every consumer has a distinct ranking regarding the utilities of various goods. The consumer therefore knows how to achieve the same total utility level by varying portions of two different goods (or of one specific good and the “anything-else-good”). The shapes of these “indifference curves” depend on the gradients of marginal utility curves of both goods (Figure 3).
3. The individual income level (represented by a “consumption budget curve”) and the relative prices of goods determine in what portions different goods *can* be bought. Rational consumer behavior means that the available consumption budget is allocated to two goods (or of one specific good and the “anything-else-good”) in such a way that the highest total utility level is achieved. Graphically this is the tangent of the consumption budget curve to the highest indifference curve (Figure 4).

Figure 3: Indifference Curves with Same Total Utility Combining Two Goods

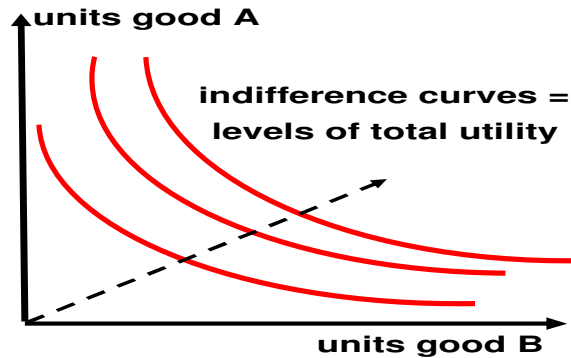
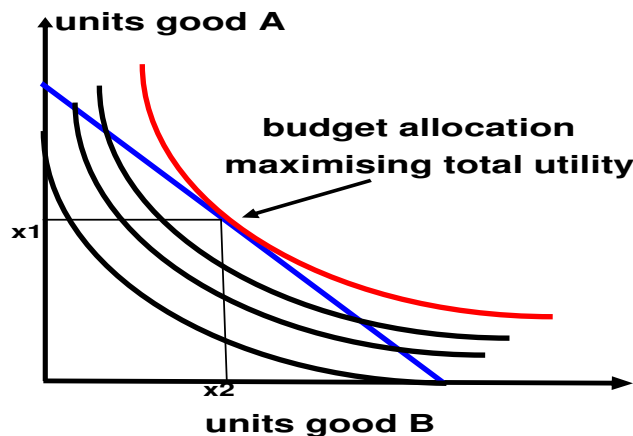
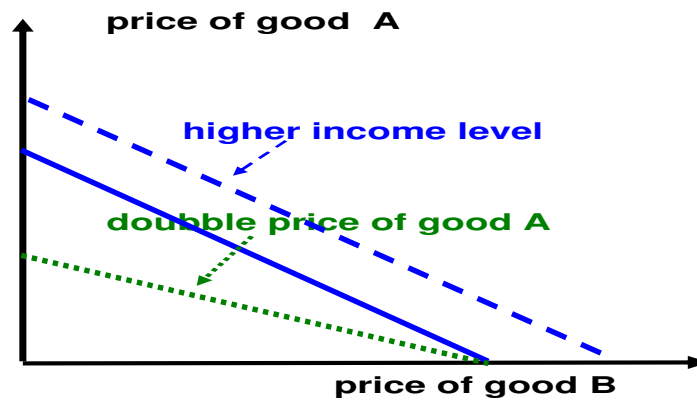


Figure 4: Maximizing of Utility by Consumers—Consumer Budget Allocation



4. If the price of a good changes, the angle of inclination of the consumption budget curve also changes. In case of rising prices, the achievable total utility or indifference curve is lower and the proportions of the demanded goods are modified as well: Ordinarily the demand for the more expensive good decreases relatively while demand for the good at unchanged prices increases (See dotted line in Figure 5).
5. However, modified proportions of goods consumed can also be the result of a changing income level and consequently the changing location of the consumer budget curve (cf. fig. 5). Because of different marginal utility curves for diverse goods, it is rather a coincidence if goods will be requested at the same proportions further on. Economists distinguish between goods that rise more than proportionally at increasing income level (superior goods) and goods that rise more than proportionally at sinking income (inferior goods).

Figure 5: Change in Relative Prices of Goods and the Inclination of the Consumer Budget Curve



## APPLYING CONSUMPTION THEORY TO TIME USE

Economic theory claims to explain choices under conditions of shortage. Consumption theory aims to explain the allocation of a limited monetary consumption budget to various consumer goods. In order to transfer this approach to media use, some kind of shortage must be presumed. In the case of gratuitous media such as television financed by advertising, it is obviously not the consumption budget that is limited. Yet there is another restriction—the availability of time or the “time budget”.

Thus the following analogies can be made:

- The duration of activities and, therefore, the duration of media use, i.e. the allocation of the time budget, can be treated in the same way as the allocation of the consumer budget for consumer goods, assuming different diminishing marginal utility for different media use activities. Thus media use activities (and non-media activities) can be combined at different portions to reach the same total utility level.
- While the location of the consumer budget curve is defined by available monetary units (e.g. €1) the “time budget curve” could be defined by available time units (e.g. 1 minute).

Nevertheless, questions about the relative “time prices” for various activities and the extent of the individual time budget must be settled as well:

- Regarding “time prices”, it appears reasonable to assume that all activities have the same price level, i.e. the value of each minute

spent on different activities is the same (or the time budget curve always has an inclination of minus 45 degrees).

- Regarding the level of the time budget (the location of the time budget curve), there are three alternatives:
  1. The value of one minute is the same for everybody: just as €1 is €1 for anyone, one minute is one minute for anyone.
  2. The value of one minute may always be the same for one person, although it is not the same for different persons. This could be a result of cultural imprint or—based on the idea of opportunity costs—the result of different hourly wages used to assess the “individual value of time” (Becker, 1965).
  3. The value of one minute can change even for individuals because of the varying availability of time during the day, the week or the year. Therefore, time can be perceived “short” or “less short”.

The first alternative—all individuals have the same time budget of 24 hours a day—is the implicit assumption of the above-mentioned economic models of media choice. Only in this case preference structures appear directly in temporal proportions of media use or other activities.

The second alternative implies that individuals may have the same preference order for types of media or for content categories (i.e. the same indifference curves), but their time budget curve has a different location, so that temporal proportions of activities can differ nevertheless.

The third alternative implies that the location of the time budget curve can even change short term—according to perceived or real time shortage. In this case, time availability becomes an essential element of decision-making and media choice. Despite stable preferences for certain media or content, the actual duration of media use varies depending on the short-term effect of the available amount of time.

### ***Hypotheses and Definitions***

For the empirical analyses, presented below, two hypotheses are essential:

- *Time availability* is an important short-term influencing factor for the choice between different media use activities and other activities (i.e. the location of the time budget curve is defined according to alternative 3).
- The individually available amount of time can be measured based on categories used in *time budget* surveys.

Concerning the measurement of time availability, an additional assumption is made: Perceived shortage in time depends to a large

extent on one's own disposability of time. According to this idea, three types or *main time categories* can be distinguished:

1. *Working time*, during which quantity and points in time are not freely disposable for most people.
2. *Semi-disposable time*, during which necessary activities are done (such as eating and personal care). Quantity and point of time can partially be arranged freely.
3. *Leisure time*, which can be used for various activities freely, apart from necessary processes of negotiation in social groups.

According to this categorization, a higher portion of time category 2 and particularly that of category 3 of the total amount of available time will lead to a higher individual time budget.

## **MEDIA USE IN GERMANY: SURVEYS ON TIME BUDGETS**

### ***Media Analyse (MA) and Langzeitstudie Massenkommunikation (MK)***

The impact of time availability on the duration of media use can be analyzed if data sets are accessible which record the duration of media use as well as the general activity structure and thus the portions of leisure time and of semi-disposable time. In Germany two surveys providing regularly collected data on media use meet these conditions: Media Analyse (MA) and Langzeitstudie Massenkommunikation (MK). Both include time budget data sets in a manner appropriate for examining the impact of time allocation of media use by secondary analysis and for a representative audience.

***Media Analyse (MA)*** Media Analyse records media consumption and daily activities of persons who are 14 years and older. Since 1968 data on print media, online media, television, radio, cinema, video, sound records and advertising posters is collected yearly on behalf of MA. MA is a syndicate that consists of advertisers and media companies that buy and sell space and time for advertisements. The research is conducted by various institutes, and MA merges the data from these multiple sources. Data sets are available as electronic media tranche, print media tranche and consumer behavior tranche.

Since the year 2000, data has been collected by means of the CATI surveying method—Computer Assisted Telephone Interviewing. A standardized interview records media use of electronic media and other activities for every quarter of an hour “the day before”. Respondents state all that they have done between 5 a.m. and midnight. Additionally, socio-demographic details, leisure preferences and consumer behavior are enquired into. All activities are distinguished based on whether they are done at home or elsewhere. Interviews are evenly spread out over the week, and interviewees describe their routines retrospectively. Time

budget data of more than 50,000 people guarantee representative results. The MA is used for prognoses on audience behavior and for a wide range of media research (Arbeitsgemeinschaft Media-Analyse, 2004).

***Langzeitstudie Massenkommunikation (MK)*** Since 1964 this longitudinal analysis surveys media use on behalf of ARD and ZDF, the German public service broadcasters. This representative survey contains details about the use of television, radio, sound records, video, newspapers, magazines, books and the Internet. Since 1970 this study has been carried out every 5 years. With a period of over 40 years, it is one of the studies with the longest time span worldwide (Reitze & Ridder 2006).

The basic population consists of all Germans aged 14 years and older. Since 2000 about 5,000 interviews are conducted by telephone (CATI) as well. Similar to the MA, the MK survey concerns media coverage, media consumption and other activities of “the day before” which are recorded as time budget data. The MK also works with a time frame of quarters of an hour. Therefore, a certain media type can be compared to another according to share of the audience, coverage, duration of use etc. The categories used to record activities are similar to those of the Media Analyse. Respondents state everything that they have done during a 24-hour day. Thus, the detailed analysis of a whole day is potentially possible.

### ***Main Time Categories Used to Measure Individual Time Availability***

Time use research is a method that records duration, dimension and position of individual and social activity. The method is suitable for the examination of routines, time budgets and the temporal structures of activities (Wotschak, 1997). Time budgets and the temporal structures of individuals, groups and entire populations can be analyzed. The objects of time budget research are the activities that respondents carry out in a certain period of time. The aim of the study determines how detailed activities are recorded. The categories used to measure activities must be clearly defined and logically coherent. Interviewees can also be asked where they have been, with whom they have been, their motivation and attitudes. In contradiction to the sheer listing of regular behavior, time budget methods record activities as a complete temporal flow (Blass, 1980; Szalai, 1984).

MA and MK use similar categories to structure daily activities. We have summarized these into three main time categories (leisure time, semi-disposable time and working time) using the system depicted in Table 1. The original main categories of the Langzeitstudie Massenkommunikation (MK) differ from ours in two main points. The MK main category “production” is similar to our “working time”, but also contains housework, home-to-office times and time spent on shopping. Sleep is classified in MK as part of the main category “regeneration time”,

Table 1: Time Categories: Structuring Different Activity Categories According to Time Disposability

| Main time categories used in this study   | Main time categories used in the Langzeitstudie Massenkommunikation (MK)   |
|---|--|
| <p><b>Total activity</b><br/>- all activities between 5 a.m. and midnight (without sleep)</p> <p><b>Leisure time (C)</b><br/>- miscellaneous activities at home<br/>- visiting friends<br/>- eating out, restaurant/pub<br/>- other activities outside</p> <p><b>Working time (A)</b><br/>- work/job out of the home<br/>- work/job at home<br/>- school/studies</p> <p><b>Semi-disposable time (B)</b><br/>- on the way in a car<br/>- on the way in public transport/bus and tram<br/>- shopping<br/>- housework</p> <p>- eating at home<br/>- personal hygiene</p> | <p><b>Total activity</b><br/>- all activities between 5 a.m. and midnight (including sleep)</p> <p><b>Leisure time</b><br/>- miscellaneous activities at home<br/>- visiting friends<br/>- eating out, restaurant/pub<br/>- other activities outside</p> <p><b>Production time</b><br/>- work/job out of the home<br/>- work/job at home<br/>- school/studies</p> <p>- on the way<br/>- shopping<br/>- housework</p> <p><b>Regeneration time</b><br/>- eating at home<br/>- personal hygiene<br/>- sleep</p> |

whereas our categorization excludes it entirely from total activity. The definition of “leisure time”, however, is the same. The MA data set does not aggregate activities into different main time segments.

## RESULTS: TIME AVAILABILITY AND MEDIA USE

### *The Regression Model*

The basic structure of consumer choice can be transferred to a regression model, which understands the selection of different media use activities (reading newspapers, watching television etc.) as result of individual decisions on time allocation. To test the model, a secondary analysis of audience data (Langzeitstudie Massenkommunikation, 2000) was undertaken via multiple regression analyses. MK 2000 data was preferred because it includes the duration of Internet use and several print media (newspapers, magazines and books) in addition to those electronic media covered by the MA 2000 data set.

The *duration of media use* is defined as dependent variable. This variable is affected by the independent variable time availability. In order to measure the influence of different degrees of time disposability, the dependent variable duration of media use was further subdivided for each media into *duration of media use during leisure time* and *duration*

of media use during semi-disposable time. The independent variable time availability was defined on the basis of the MK data set as follows: *Available leisure time* and *semi-disposable time* were both calculated as a portion of total activity (which includes all kinds of activities from 5 a.m. to midnight excluding sleep). Regressions were undertaken stepwise and only for those interviewees who used the medium concerned, excluding non-users.

### **Time Availability and Socio-Demographic Variables**

Results of the time allocation model were compared with those of a regression model in which media use was explicated using the socio-demographic variables age, gender, formal education and income. Our assumption was that time variables rather than socio-demographic variables would better serve to explain individual media use. This was confirmed for the use of television and radio (Table 2).

Table 2: Duration of Media Use, Socio-Demographic Variables, Time Availability and Integrated Model

| Criteria                     | Predictors   |   |  |
|------------------------------|--|---|--|
|                              | socio-demographic model<br>(gender, age, formal education, income) | Time allocation model<br>(leisure time, semi-disposable time) | integrated model (socio-demographic and time allocation model) |
|                              | <b>adjusted R Square</b>   |   |  |
| <b>duration of TV use</b>    | <b>n: 4146</b>   |   |  |
| whole day                    | 0.019  | 0.003   | 0.023  |
| during leisure time          | 0.007  | 0.284   | 0.273  |
| during semi-disposable time  | 0.009  | 0.051   | 0.055  |
| <b>duration of radio use</b> | <b>n: 4234</b>   |   |  |
| whole day                    | 0.007  | 0.033   | 0.041  |
| during leisure time          | 0.004  | 0.091   | 0.094  |
| during semi-disposable time  | 0.079  | 0.351   | 0.355  |

Data Source: Langzeitstudie Massenkommunikation 2000, FSU Jena 2006, excluding non-users

A first study completed with MA data has already shown that time availability as independent variable explains media consumption better than socio-economic factors (Seufert & Suckfüll, 2006). These findings support the supposition that besides socio-demographic variables, time as an influencing factor is worth consideration.

### **Results for the Impact of Time Availability on Total Media Use**

The results depicted in Table 3 show that time availability has a strong impact on the *duration of total media use*. For social science the R Squares are considerably high. Two findings must be mentioned:

- First, total media use during main time categories (leisure time or semi-disposable time) can be explained much better than total media use over the whole day. R Square for total media use during semi-disposable time (R Square: 0.398) is slightly higher than for media use during leisure time (R square: 0.372), but in both cases more than one third of the variance of these two variables can be explained by time availability.
- Second, total electronic media use can be explained much better by time availability than total use of print media.

Beta Coefficients allow conclusions about the strength and direction of the impact of independent variables on dependent variables. The more disposable time someone has, the higher is the use of total media use during leisure time (Beta: 0.610). Analogically the individual level of time used for necessary activities (like housework, eating etc.) affects the duration of total media use during semi-disposable time (Beta: 0.620).

Table 3: Time Availability and Duration of Media Use

| Criteria                                      | Predictors: leisure time, semi-disposable time |                   |                      |
|---|--|-------------------|----------------------|
|   | Adjusted R Square                              | Beta Coefficients |                      |
|   |  | leisure time      | semi-disposable time |
| <b>Duration of total media use</b>            | <b>n: 4978</b>                                 |                   |                      |
| whole day                                     | 0.009  | -0.076            | 0.049                |
| during leisure time                           | 0.372  | 0.610             | -                    |
| during semi-disposable time                   | 0.398  | -0.046            | 0.620                |
| <b>Duration of total electronic media use</b> | <b>n: 4932</b>                                 |                   |                      |
| whole day                                     | 0.009  | -0.080            | 0.042                |
| during leisure time                           | 0.335  | 0.579             | -                    |
| during semi-disposable time                   | 0.371  | -0.036            | 0.601                |
| <b>Duration of total print media use</b>      | <b>n: 3314</b>                                 |                   |                      |
| whole day                                     | 0.003  | 0.057             | -                    |
| during leisure time                           | 0.133  | 0.365             | -                    |
| during semi-disposable time                   | 0.054  | -                 | 0.233                |

Data Source: Langzeitstudie Massenkommunikation 2000, FSU Jena 2006, excluding non-users

The influence of time availability on *total electronic media use* over the whole day is also very low in comparison to the separate analyses of media use during leisure and semi-disposable time. Available leisure time and time used for necessary activities explain between 33% and 37% of the duration of total electronic media use during leisure time and during semi-disposable time.

The conclusion that separate analyses of media use according to different main time categories reveal better results than an analysis for the whole day is also true for *print media*. The influence of time availability on print media use during leisure time (R Square: 0.133) is more than twice as strong as on print media use during semi-disposable

time (R Square: 0.054). However, R Squares are not as high as for total media use and for total electronic media use.

Time availability has a stronger impact on total electronic media use probably because it is subject to a higher degree of temporal constraint. Television consumption, radio use and use of other electronic media require equipment which is usually only available at certain places and cannot easily be taken with the recipient. In contrast books, newspapers and magazines can easily be taken to different places. Their use is not as restricted in time (and space).

On the other hand, different media are differently suitable for use in leisure time and semi-disposable time. As these time categories are shaped by different activities with different degrees of disposability and constraints, not every kind of media consumption is possible. During household activity, it is obviously possible to listen to the radio or to the television as a background medium rather than to read a book which is unsuitable as background medium. Print media require a higher degree of attention than electronic media because they appeal to only one sense.

### **Results for the Impact of Time Availability on Different Electronic Media**

Table 4 shows that time availability is also a good predictor for the duration of use of different electronic media. Just as for total media use, nearly each R Square for television, radio and the Internet is higher for the duration of use during leisure time or during semi-disposable time than for the whole day (cf. table 4). These findings about the use of different electronic media based on regression analyses with MK data confirm the findings from similar calculations with MA data (Seufert & Suckfüll 2006: 88).

Available leisure time and semi-disposable time explain more than one fourth of variance of *television use* during leisure time (R Square: 0.284). Leisure time has the strongest influence on television use during that time (Beta: 0.543). The more freely disposable time a person has, the more time s/he spends on watching television. Time availability does not have such a high impact on television use during semi-disposable time (R Square: 0.051).

R Square for *radio use* during the whole day is also lower than for radio use analyzed separately for the main time categories. Time availability explains more than one third of radio use during semi-disposable time (R Square: 0.351). The Beta Coefficient of semi-disposable time indicates a strong correlation between time and radio use (Beta: 0.587). Semi-disposable time has a stronger influence on radio use than leisure time has on television use. Radio is a popular medium chosen to enhance disagreeable household activities, or it is listened to parallel to eating (Kuhlmann & Wolling, 2004).

Table 4: Time Availability and Duration of Use of Electronic Media

| Criteria                        | Predictors: leisure time, semi-disposable time |                   |                      |
|---------------------------------|--|-------------------|----------------------|
|                                 | adjusted R Square                              | Beta Coefficients |                      |
|                                 |  | leisure time      | semi-disposable time |
| <b>duration of TV use</b>       | <b>n: 4146</b>                                 |                   |                      |
| whole day                       | 0.003  | 0.059             | -                    |
| during leisure time             | 0.284  | 0.543             | 0.069                |
| during semi-disposable time     | 0.051  | -0.039            | 0.216                |
| <b>duration of radio use</b>    | <b>n: 4234</b>                                 |                   |                      |
| whole day                       | 0.033  | -0.146            | 0.086                |
| during leisure time             | 0.091  | 0.285             | -0.062               |
| during semi-disposable time     | 0.351  | -0.030            | 0.587                |
| <b>duration of Internet use</b> | <b>n: 755</b>                                  |                   |                      |
| whole day                       | 0.040  | -0.138            | -0.178               |
| during leisure time             | 0.221  | 0.471             | -                    |
| during semi-disposable time     | 0.017  | -                 | 0.136                |

Data Source: Langzeitstudie Massenkommunikation 2000, FSU Jena 2006, excluding non-users

Overall, the results for television use during leisure time and for radio use during semi-disposable time confirm that watching television is still mainly a leisure activity in Germany whereas radio is a medium mainly used parallel to other activities (household activity, eating etc.).

The Internet is the only electronic medium with lower impact of time availability on its use during semi-disposable time than on its use during the whole day. But time availability strongly influences the duration of *Internet use* during leisure time (R Square: 0.221). Availability of leisure time is positively correlated with Internet use (Beta: 0.471). The higher the individual leisure time budget is, the more time the recipient spends online during that time.

### **Results for Different Print Media**

Time availability does not explain the duration of use of different print media as well as that of electronic media, although separate analyses according to time categories also generate higher R Square (Table 5). Reading generally seems to be a leisure activity. The influence of time availability on the duration of use is strongest during leisure time for all print media.

Table 5: Time Availability and the Duration of Print Media Use

| Criteria                              | Predictors: leisure time, semi-disposable time |                   |                      |
|---------------------------------------|--|-------------------|----------------------|
|                                       | adjusted R Square                              | Beta Coefficients |                      |
|                                       |  | leisure time      | semi-disposable time |
| <b>duration of reading newspapers</b> | <b>n: 2551</b>                                 |                   |                      |
| Whole day                             | 0.003  | -                 | 0.057                |
| During leisure time                   | 0.072  | 0.269             | -                    |
| During semi-disposable time           | 0.058  | -                 | 0.242                |
| <b>duration of reading magazines</b>  | <b>n: 783</b>                                  |                   |                      |
| Whole day                             | -  |                   |                      |
| During leisure time                   | 0.142  | 0.378             | -                    |
| During semi-disposable time           | 0.053  | -0.127            | 0.170                |
| <b>duration of reading books</b>      | <b>n: 1004</b>                                 |                   |                      |
| Whole day                             | 0.024  | 0.131             | -0.073               |
| During leisure time                   | 0.251  | 0.502             | -                    |
| During semi-disposable time           | 0.012  | -                 | 0.115                |

Data Source: Langzeitstudie Massenkommunikation 2000, FSU Jena 2006, excluding non-users

Available leisure time (Beta: 0.269) and semi-disposable time (Beta: 0.242) are both positively correlated with reading *newspapers*. Yet, these only explain about six per cent of the variance of reading newspapers in the two main time categories.

The duration of reading *magazines* during the whole day cannot be explained by time availability at all, whereas we do find significant results for the duration of use during leisure time (R Square: 0.142). The Beta Coefficient of leisure time is moderately high and positively correlated with reading magazines during leisure time. Time availability can predict magazine use during semi-disposable time only to a smaller extent (R Square: 0.053).

Compared to newspapers and magazines, the correlation between leisure time and reading *books* during free time is the closest. Reading books probably requires more attention than the reception of other print media. One fourth of the duration of reading books during leisure time can be explained by time availability (R Square: 0.251).

## SUMMARY AND CONCLUSIONS

The fundamental problem in predicting individual media use arises from the fact that more or less stable preferences for certain types of media or content categories are “hidden” behind instable fluctuations in the acute media use behavior caused by short-term context variables. In order to attain better results, a separation of long-term and short-term influences would be necessary.

To reach this goal, a regression model based on microeconomic consumption theory was developed, which transfers the idea of consumer

budget allocation between different goods to time allocation between different activities, including those of media use. Within such a theoretical framework, the variable *time availability* stands for the most important short-term context factor of individual media use. It can be calculated directly if audience surveys include general time budget data.

Three important findings from regression analyses based on data of Langzeitstudie Massenkommunikation (2000) must be stressed:

- There is a strong influence of the independent variable time availability on the duration of total media use as well as on the duration of use of single types of media (adjusted  $R^2$  up to 0.4). This is well above the influence of the socio-demographic variables age, gender, formal education and income on individual media use.
- However, this strong impact is not evident for the duration of media use during the whole day, but only for the duration of media use within different *main time categories* defined as “leisure time” and “semi-disposable time”. This leads to the hypothesis that the orders of preference for media use activities are different within these two time categories. Watching television during leisure time does not seem to be the same as watching television parallel to other activities, i.e. during semi-disposable time.
- The duration of total electronic media use is better explained by time availability than the duration of the different types of electronic media, while this is not the case for total print media and single print media, respectively. These differences may be indicative of different substitution effects between electronic and print media.

The results indicate that further research on the impact of time availability on media use is promising. Research should head into three directions:

- A more detailed view on media use in different time segments: Calculations were made for the whole day and for all days of the week. However, decisions on time allocation and media use might not only be influenced by the general “degree of disposability” of the available time (leisure time or semi-disposable time), but also by changing assessments on the value of that available time during a day or a week. Examining the days of the week and several smaller time segments during a day (e.g.: morning, afternoon, evening) separately could provide more information on this.
- A more detailed view on content categories: Langzeitstudie Massenkommunikation as well as Media Analyse—so far does not include more information than the use of different types of

media and—in the case of television and radio—of different channels. Thus, for conclusions about content-related preferences, the data set must be extended to include information on the specific content offered by television and radio stations during the days covered by the surveys. At the least, a differentiation between information (news, documentary etc.) and entertainment (movies, shows etc.) programs appears necessary.

- The final research goal in identifying short-term influences on media use is to also obtain a better understanding of the influences on long-term preference orders. The subdivision of the data set into groups with similar time budgets (i.e. similar amount of leisure time and semi-disposable time), but different media use patterns (i.e. different temporal proportions in media use) can help identify socio-demographic or other variables which are responsible for these different orders of preferences, thus avoiding the statistical effects of short-term context variables.

## REFERENCES

- Arbeitsgemeinschaft Media-Analyse (2004): <http://www.agma-mmc.net/> (09/14/ 2006)
- Becker, G. S. (1965): A Theory of the Allocation of Time. *Economic Journal* 75, 493-517.
- Blass, W. (1980): *Zeitbudget-Forschung: Eine kritische Einführung in Grundlagen und Methoden*. Frankfurt a.M./New York: Campus.
- Kuhlmann, C. & Wolling, J. (2004): Fernsehen als Nebenbeimedium. Befragungsdaten und Tagebuchdaten im Vergleich. In: *Medien und Kommunikationswissenschaft*, 52, 03/2004, 386-411.
- McQuail, D. (1997): *Audience Analysis*. London: Sage.
- Picard, R. G. (1989): *Media Economics – Concepts and Issues*. Newbury Park: Sage.
- Owen, B. M., Beebe, J. & Manning, W. (1974): *Television Economics*. Lexington, MA: D.C. Health.
- Owen, B. M. & Wildman, S. S. (1992): *Video Economics*. Cambridge/London: Harvard University Press.
- Reitze, H. & Ridder, C.-M. (Eds.) (2006): *Massenkommunikation VII. Eine Langzeitstudie zur Mediennutzung und Medienbewertung 1964 – 2005*. Baden-Baden: Nomos.
- Seufert W. & Suckfüll M. (2006): Zeitverfügbarkeit und Zeitbewertung als Erklärungsfaktoren der individuellen Mediennutzung. In: Meulemann, H. & Hagenah, J. (Eds.): *Sozialer Wandel und Mediennutzung in der Bundesrepublik Deutschland*. Berlin: Lit.
- Steiner, P. O. (1952): Program patterns and preferences, and the workability of competition in radio broadcasting. *Quarterly Journal of Economics* 66, 194-223.

- Szalai, A. (1984): The Concept of Time Budget Research. In: Harvey, A. S./Szalai, A./Elliot, D./Stone, P. J. & Clark, S. M. (Eds.) (1984): *Time Budget Research: An ISIC Workbook in Comparative Analysis*. Frankfurt/Main: Campus, 17-34.
- Weibull, L. (1985): Structural factors in gratifications research. In: Rosengren, K.E./Palmgreen, P. & Wenner, L. (Eds.): *Media gratifications research: Current perspectives*. Beverly Hills, CA: Sage.
- Webster, J., Phalen, P. & Lichty, L. (2000): *Ratings Analysis. The Theory and Practice of Audience Research*. Mahwah: Erlbaum.
- Wotschak, P. (1997): *Zeit und Klasse. Soziale Ungleichheit im Lichte moderner Zeitstrukturen*. Hamburg: VSA.

