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***TIME USE AND HOUSEHOLD PRODUCTION
IN POOR GERMAN FAMILIES***

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TIME USE AND HOUSEHOLD PRODUCTION IN POOR GERMAN FAMILIES

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ABSTRACT

New developments in poverty research call for turning away from a one-dimensional view of poverty - no longer conceiving it simply as income poverty but instead broadening it by looking at more than one dimension of living. A theory developing in this way has to be empirically remodeled. The time budget survey of the German National Office of Statistics, recently made available for scientific use, was suitable for the purpose. Using the data, it could be shown that income poverty is associated with further important indicators of well-being and welfare, like for examples children's health and school performance, adults' time use abilities and involvement in social networks. However, not all low income households are affected to the same degree by this kind of multiple poverty. Even in insecure circumstances, households can be better off or worse off. The variance detected in this investigation could be explained partly by differences in human capital endowments and in time use. Some key results are:

1. Besides parents' formal education, their time use has also an impact on children's success in school. Fathers' over average time spent in watching TV has a negative impact. For single parents, a trade-off was found between children's school performance and the adult's labour force participation.
2. There are problems with using abundant time. TV-utilization and the statement that a person has too much leisure are associated.
3. There are problems with matrimonial division of labour. The more time the wife spends in working a paid job the more the husband complains that he does too much household work.
4. The ability of poor families to take part in social networks depends on their skills and time resources.

The concluding section discusses implications for social policy and the teaching of home economics.

JEL classification: D1, D2, D6, I1, I2, I3

Keywords: poverty, household production, life styles, time use

1. Introduction

Traditionally economists define poverty in terms of income. All households with an income below a particular threshold are considered to be poor. This threshold depends of course on household composition, or, in other words, has to be adjusted by so called equivalence numbers. Nevertheless, the basic idea is that poverty is seen as poverty in terms of income.

More recent developments have expanded this view of poverty. Here Gary Becker's (1965) concept of household production should first be mentioned. According to Becker the utility of a household is the output of the production of the household. Inputs are time, money and human capital. So money income, which describes the amount of market goods used in household production, can only be one indicator for the real welfare of the household. The household's resources of time and human capital have to be considered as well as money income. Hence assessing the welfare of a household requires examining simultaneously its money income, time use and capabilities. The same holds, *mutatis mutandis*, for poverty. It follows that research is needed into the questions of whether poor households are able to compensate, at least to a certain degree, for the lack of money by arranging household production in particular ways, or, if their situation is even worse than indicated by income, because the reason for the lack of money income is the same as that for the poor standard of the household's management - insufficient human capital.

A second development involves approaches that see income only as one dimension of the situation of the household or its standard of living.¹ Other dimensions for assessing this

¹ See for example Atkinson (2002) or Piorkowsky(2003b).

situation would be, e.g., the household's living conditions, its integration into social networks, the health of the household members, their access to education, information and political participation. A further point that should be mentioned in this context is the quality of time use. Especially the non working poor often have a lot of time. Are they able to use this time in productive, meaningful activities? Are they able to enjoy leisure time? Or is abundant time a burden, whose use involves boredom, discouragement, or even despair? ²

The three views on poverty, listed so far, are interconnected. Money income surely continues to be a key variable in explaining poverty. Time, however, also plays an important part.

With respect to time use, researchers currently have the opportunity of carrying out studies using the recently published data of the time use survey 2001/2002 of the Statistisches Bundesamt Deutschland³.

The sample size is about 5500 households with about 14500 members. Data were collected by the following methods:

- household questionnaires
- personal questionnaires (to be filled in by all household members older than 10 years)
- time diaries (to be filled in by all household members older than 10 years).

The usual socio-economic and socio-demographic data were collected for households and their members. In particular, data are available for household composition, income, living conditions, profession and education, health and satisfaction. Based on the time diaries, a file

² See to this Steedman (2001) and Rinderspacher (2002).

³ Germany's National Office of Statistics.

was constructed that indicates how much time was used for which activity each day. The list⁴ of activities covers about 270 items. The activities are classified hierarchically by subject. For example, we have activity 312 "baking" which comes under activity group 31 "preparing meals", which in turn is subsumed under activity field 3 "housekeeping".

The empirical investigation presented below is based on a 95% scientific-use-file which was handed out to a group of social scientists in 2003. The sample size is 5171 households with a total of 13 859 persons. As some of the data are missing and as this investigation only looks at families with children, the sample sizes actually used are smaller and vary depending on the variables used.

The aim of this investigation is to discover connections between income poverty, household production and life situations by using the recently available German time use data, described above. The plan of the study will be expanded in the next section.

2. The Design of the Investigation

The present study is restricted to families with children⁵. These can be divided into those with two parents and those with single mothers (or fathers). The point of departure is the framework of household production. Therefore, the variables of the time use survey were examined to find those that could be interpreted as outputs of household production. The German time use survey gives a precise image of household production inputs, but

⁴ The detailed list is given in Appendix A1.

⁵ Household members younger than 19 years.

unfortunately not of outputs. Nevertheless, a handful of output indicators could be captured. They are listed in Tables 1 and 2.

Some remarks about these variables! According to Becker the "quality of children" is an important output of household production. Under this "quality" he includes, among other criteria, children's education and health. Knowing the specifics of the German educational system, we can find proxies for children's performance at school. Children attend primary school aged from 7-10. On the basis of their marks in primary school, they are "recommended" to three different types of secondary school and attend these between the ages of 11-16:

"Hauptschule", extended primary education

"Realschule", secondary education, focusing on preparing for vocational training

"Gymnasium", secondary education, focusing on preparing for university.

Omitting details, it can be said that these schools form a hierarchy.

After the age of 16, young people continue their education either by taking vocational training or at the "Gymnasium", which prepares them for university.

Time use survey data has variables that show what kind of school children attend. So it was possible to construct the indices SEKmCHILDn, which give some hints for children's success at school. Time use survey data also includes a variable that describes the state of health of a person. Although what is collected is only the self-estimated state of health, it might nevertheless be used as a proxy for children's real health.

The next variables in Tables 1 and 2 are QUANTHOUSE... and QUANTLEISURE.... They are based on the respondents' answers to the questions of whether they think that they are doing too little housework, just enough housework or too much housework and whether

they have too little leisure, just enough leisure or too much leisure. They do not directly measure the output of household production but they do tell us something on the productivity of time use.

Tab. 1 Output indicators for couples

Variable	Content	Measures
SEK1CHILD1	Kind of school child1 attends from ages 12 to 15	2=Gymnasium
SEK1CHILD2	Kind of school child2 attends from ages 12 to 15	1= Haupt/Realschule
SEK1CHILD3	Kind of school child3 attends from ages 12 to 15	0=else
SEK2CHILD1	Kind of school child1 attends from ages 17 to 18	2=Gymn., 1=vocational
SEK2CHILD2	Kind of school child2 attends from ages 17 to 18	training, 0=else.
HEALTHCHILD1	Health state of child1	Range from 0 (very bad) to 4 (very good)
HEALTHCHILD2	Health state of child2	
HEALTHCHILD3	Health state of child3	
QUANTHOUSEFATHER	Self assessment of the amount of time used for housekeeping by father/mother	1=too little 2=right
QUANTHOUSEMOTHER		3= too much
QUANTLEISUREFATHER	Self assessment of the amount of personal leisure by father/mother	1=too little 2=right
QUANTLEISUREMOTHER		3= too much
SATLEISUREFATHER	Satisfaction with personal leisure	Range from 1 (very content) to 7 (very discontent)
SATLEISUREMOTHER		
LINCFATHER	Father's labour income	Income classes from 0-13
LINCMOTHER	Mother's labour income	
EXPHELP	Help given to others by household members	Comparative index based on questions P071 – P0714

Tab. 2 Output indicators for single parents

Variable	Content	Measures
SEK1CHILD1	Kind of school child1 attends from ages 12 to 15	2=Gymnasium
SEK1CHILD2	Kind of school child2 attends from ages 12 to 15	1= Haupt/Realschule
SEK1CHILD3	Kind of school child3 attends from ages 12 to 15	0=else
SEK2CHILD1	Kind of school child1 attends from ages 17 to 18	2=Gymn., 1=vocational
SEK2CHILD2	Kind of school child2 attends from ages 17 to 18	training, 0=else
HEALTHCHILD1	Health state of child1	Comparative from 0 (very bad) to 4 (very good)
HEALTHCHILD2	Health state of child2	
HEALTHCHILD3	Health state of child3	
QUANTHOUSEADULT	Self assessment of the amount of time used for housekeeping by adult	1=too little 2=right
QUANTLEISUREADULT	Self assessment of the amount of personal leisure by adult	3= too much
SATLEISUREADULT	Satisfaction with personal leisure	1=too little 2=right
LINCADULT	Adult's labour income	3= too much
EXPHELP	Help given to others by household members	Range from 1 (very content) to 7 (very discontent)
		Income classes from 0-13
		Comparative index based on questions P071 – P0714

The function of the variables SATLEISURE... is similar. Its measures indicate personal satisfaction about leisure. The possibility of enjoying leisure might depend on human capital and is therefore a further indicator for productivity in household production. Additionally, SATLEISURE..., together with QUANTLEISURE..., allows us to look at the problem of whether abundant time leads to boredom.

The variables LINC... document labour income earned⁶ by adult household members. Labour income gives hints for the productivity of the household, as finding and keeping a job presuppose a certain capacity to replicate the work force in the household.

Finally the variable EXPHELP was constructed as an indicator that summarizes various kinds of help given by household members to other households. Clearly it reflects the ability of the household to produce services useful to others.

Descriptive statistics of the output indicators listed above are given in Tables 3 and 4, columns 2-4.

Now, among these indicators we look for those which are correlated with income poverty. The question is, which indicators show poor results when income is low. For this a binary variable POOR is defined as follows. 60 % of national median income is fixed as the

⁶ Respondents could either indicate exact net labour income or indicate only the income class their net income comes under. Many made use of the second possibility. So as not to lose data we unify all observations to income classes. There are 13 classes in equidistant intervals from class 0 (€ 0-250 p.m.) to class 12 (€ 4750 – 5000 p.m). Class 13 is € 5000 p.m. and more. Given this, we treat LINC... as a comparative variable. As classes 0-12 are equidistant with relatively small steps, there is little loss of information for the observations for which exact income is available.

poverty threshold. For Germany in 2001, this number is € 9455 per year for a single adult. For households with more than one person, the following equivalence numbers are used:

1 for an additional adult

0.5 for a child.

This approach is similar to both the former OECD-scale and the German social assistance scale. If the net income of a household is below the poverty thresholds defined above, then POOR=1, otherwise POOR=0.

Column 5 in Tables 3 and 4 shows correlations between the output indicators and income poverty (defined by POOR). Column 6 gives the corresponding levels of significance.

Tab. 3 Descriptive statistics, correlations und levels of significance of the indicators for two parents

Variable	Obs.	Mean	Std.	Correlation with POOR (Spearman)	Significance
SEK1CHILD1	394	1.46	0.61	-0.15	0.0016
SEK1CHILD2	291	1.47	0.57	-0.23	0.0001
SEK1CHILD3	58	1.36	0.64	-0.39	0.0004
SEK2CHILD1	157	1.43	0.83	-0.25	0.003
SEK2CHILD2	291	1.03	1	-0.21	0.0001
HEALTHCHILD1	956	3.26	0.63	-0.05	0.08
HEALTHCHILD2	570	3.30	0.62	-0.03	0.23
HEALTHCHILD3	117	3.29	0.62	-0.12	0.11
QUANTHOUSEFATHER	1314	1.69	0.59	0.06	0.0225
QUANTHOUSEMOTHER	1401	2.11	0.70	0.02	0.17
QUANTLEISUREFATHER	1416	1.38	0.54	0.1	0.0003
QUANTLEISUREMOTHER	1405	1.33	0.50	0.04	0.0723
SATLEISUREFATHER	1413	4.33	1.65	-0.03	0.16
SATLEISUREMOTHER	1399	4.47	1.65	-0.04	0.09
LINCFATHER	1426	7.89	3.52	-0.42	0.0001
LINCMOTHER	1422	2.28	2.84	-0.31	0.0001
EXPHELP	1422	4.14	4.00	-0.04	0.06

Tab. 4 Descriptive statistics, correlations und levels of significance of the indicators for single parents

Variable	Obs.	Mean	Std.	Correlation with POOR (Spearman)	Significance
SEK1CHILD1	175	1.44	0.59	-0.18	0.0066
SEK1CHILD2	62	1.26	0.68	-0.41	0.0001
SEK1CHILD3	13	1.08	0.86	-0.83	0.0001
SEK2CHILD1	54	1.15	0.88	-0.24	0.043
SEK2CHILD2	20	1.10	0.97	-0.05	0.42
HEALTHCHILD1	354	3.21	0.65	0.07	0.07
HEALTHCHILD2	136	3.21	0.67	-0.07	0.20
HEALTHCHILD3	25	3.32	0.75	-0.18	0.19
QUANTHOUSEADULT	459	1.94	0.69	0.10	0.0186
QUANTLEISUREADULT	460	1.36	0.50	0.11	0.0127
SATLEISUREADULT	459	4.38	1.75	-0.06	0.12
LINCADULT	465	4.02	3.48	-0.62	0.0001
EXPHELP	465	0.34	0.57	-0.05	0.16

First, it can be seen that all variables SEK m CHILD n that are proxies for children's success at school, are negatively correlated with POOR. With one exception, significance is convincing. This means that children from poor families profit less from public education than children from wealthier households or, in other words, they do worse at school and vocational training than those that are not poor.⁷

In the following, the variables SEK m CHILD n are combined in a single comparative index EDUCHILDREN, which measures the average educational success of all children in a household, in order to avoid loss of observations because of missing items. The exact definition of EDUCHILDREN is given in Appendix A2.

For children's health state the results are less uniform. In two parent families children's health is negatively correlated with POOR, however, only health of child 1 is significant. For single parent families, health of the first child is positively correlated with poverty, health

⁷ On this point, the German time use survey just replicates well-known results, e.g. Haveman and Wolfe (1995),

states of the second and third child are negatively correlated. So it can at least be said that for two parent families income poverty is negatively correlated with health. This means that poor children have an higher risk of having poorer health.⁸ For the same reasons as with the educational dummies, in the following we will use an index HEALTHCHILDREN. Its exact definition is given in Appendix A2.

Now let us turn to the variables that describe assessments of time use ability. QUANTHOUSEMOTHER does not have good significance, but QUANTHOUSEFATHER⁹ and QUANTHOUSEADULT do. These are positively correlated with POOR. This means that adults in poor families tend to say that they spend too much time on housework. The same result can be found for the assessment of the amount of leisure. QUANTLEISURE/FATHER/MOTHER/ADULT are positively and significantly correlated to POOR. So poor people tend to respond that they have too much leisure.

SATLEISUREFATHER/MOTHER/ADULT are negatively correlated to POOR. Given the value measures of SATLEISURE (1=very content, 7=very discontent), this means that income poverty is connected with dissatisfaction about one's leisure. So, to summarize, poor people think that they have too much leisure and are dissatisfied about this. As the significances of the QUANTLEISURE variables are better than that of the SATLEISURE variables, in the following we will use the QUANTLEISURE variables as indicators for problems with the enjoyment of leisure. For the same reasons, and with the same intention, QUANTHOUSEFATHER and QUANTHOUSEADULT will be used.

Ermisch and Francesconi (2001), Schimpl-Neimanns (2000), Deutsches PISA-Konsortium (2001).

⁸ For the connection of income and poverty in Germany see Statistisches Bundesamt (1998) and e.g. Waller (2003).

Concerning labour income, Tables 3 and 4 show that there is a strict negative correlation between income earned and income poverty. This result cannot be surprising, nevertheless labour income will be included in the list of poverty indicators.

Finally it turned out that EXPHELP, the help given to other households, is negatively correlated to POOR at a quite tolerable level of significance. So poor households are less able to engage in social networks, and this might have consequences when a household itself needs help from others.

With the results given in Tables 3 and 4 and the above comments, we get the below list of variables that will be used as dependent variables in this investigation:

- EDUCHILDREN
- HEALTHCHILDREN
- QUANTHOUSEFATHER
- QUANTHOUSEADULT
- QUANTLEISUREFATHER
- QUANTLEISUREMOTHER
- QUANTLEISUREADULT
- LINC FATHER
- LINC MOTHER
- LINC ADULT
- EXPHELP .

⁹ Compare to this Spruijt, Duindam (2003).

These variables all have the following three properties:

- they are correlated with income poverty
- they are widely recognized as indicators of social situations
- they may be interpreted as output indicators in the framework of household production theory.

Having shown the prerequisites, we can turn to the particular questions of this investigation. The above variables can indicate poverty in terms of several dimensions. To see this, we looked at all families in the time budget data, both the poor and the not poor ones. Now we focus on the poor. Is there a noticeable variation in the variables listed above among the poor? And, if yes, what are the reasons for these differences?

The relevance of these questions for social policy is obvious. If households are living in income poverty, what are their chances of improving their situation with regard to other dimensions of their well-being? What kind of interventions are suggested by the results we find?

As the indicators above can be interpreted as household production outputs, we will try to find explanatory variables among household production inputs. Production theory traditionally sees capital, labour and know-how as inputs. Money capital is not very relevant at this point, because, as we said, the sample consists of poor families. So we concentrate on time use and human capital as input factors of household production. Looking through the items given in the time budget survey, we were able to select as possible regressors the variables in Tables 5 and 6.

Tab. 5 Description of input variables - two parents

Variable		Content	Labels
EPSFATHER	EPSMOTHER	0/1 dummies, describing mother's and father's (highest) school leaving degree: 1= successfully terminated 0= otherwise .	Extended primary school
SSFATHER	SSMOTHER		Secondary school preparing for vocational training
ABIFATHER	ABIMOTHER		Secondary school preparing for university
VTFATHER	VTMOTHER	0/1 dummies, describing mother's and father's post-school qualifications	Vocational training=1 0= else
UNIFATHER	UNIMOTHER		1 = University 0 = else
HEALTHFATHER	HEALTHMOTHER	Health state of mother and father	Ordinal from 0 (very bad) to 4 (very well)
HELP		Amount of help received by the household	Ordinal Index based on items H081-H0815
ZH0FATHER	ZH0MOTHER	Time for..Reviving physically	Minutes per day
ZH1FATHER	ZH1MOTHER	Paid work	
ZH2FATHER	ZH2MOTHER	Learning	
ZH3FATHER	ZH3MOTHER	Housekeeping and family care	
ZH4FATHER	ZH4MOTHER	Voluntary work	
ZH5FATHER	ZH5MOTHER	Social life and entertainment	
ZH6FATHER	ZH6MOTHER	Sports and outdoor activities	
ZH7FATHER	ZH7MOTHER	Hobbies and games	
ZH8FATHER	ZH8MOTHER	Utilizing the media	

Tab. 6 Description of input variables - single parents

Variable	Content	Labels
EPSADULT	0/1 dummies, describing mother's or father's (highest) school leaving degree: 1= successfully terminated 0= else .	Extended primary school
SSADULT		Secondary school preparing for vocational training
ABIADULT		Secondary school preparing for university
VTADULT	0/1 dummies, describing mother's or father's post-school qualifications	Vocational training=1 0= else
UNIADULT		1 = University 0 = else
HEALTHADULT	Health state of single parent	Ordinal from 0 (very bad) to 4 (very well)
HELP	Amount of help received by the household	Ordinal Index based on items H081-H0815
ZH0ADULT	Time for..Reviving physically	Minutes per day
ZH1ADULT	Paid work	
ZH2ADULT	Learning	
ZH3ADULT	Housekeeping and family care	
ZH4ADULT	Voluntary work	
ZH5ADULT	Social life and entertainment	
ZH6ADULT	Sports and outdoor activities	
ZH7ADULT	Hobbies and games	
ZH8ADULT	Utilizing the media	

Tab 7 Descriptive statistics – poor two parent families

Variable	Observations	Mean	Std.	Min	Max
EDUCHILDREN	121	1.14	0.60	0	2
HEALTHCHILDREN	153	3.21	0.59	1	4
QUANTHOUSEFATHER	249	2.02	0.9	1	4
QUANTLEISUREFATHER	249	1.52	0.64	1	4
LINCFATHER	250	4.75	3.17	0	10
LINCMOTHER	250	0.52	1.29	0	7
EPSFATHER	250	0.40	0.49	0	1
EPSMOTHER	250	0.20	0.40	0	1
SSFATHER	250	0.34	0.47	0	1
SSMOTHER	250	0.55	0.50	0	1
ABIFATHER	250	0.23	0.42	0	1
ABIMOTHER	250	0.22	0.42	0	1
VTFATHER	250	0.82	0.38	0	1
VTMOTHER	250	0.78	0.42	0	1
UNIFATHER	250	0.12	0.33	0	1
UNIMOTHER	250	0.10	0.30	0	1
HEALTHFATHER	249	2.74	0.82	0	4
HEALTHMOTHER	249	2.84	0.70	0	4
HELP	250	1.22	0.85	0	7
ZH0FATHER	247	643	95	410	1240
ZH1FATHER	247	260	198	0	823
ZH2FATHER	247	8	39	0	340
ZH3FATHER	247	191	127	0	716
ZH4FATHER	247	23	44	0	260
ZH5FATHER	247	91	77	0	503
ZH6FATHER	247	26	45	0	240
ZH7FATHER	247	18	35	0	243
ZH8FATHER	247	171	89	0	463
ZH0MOTHER	247	665	88	420	1036
ZH1MOTHER	247	50	112	0	746
ZH2MOTHER	247	12	50	0	433
ZH3MOTHER	247	411	137	47	727
ZH4MOTHER	247	20	50	0	440
ZH5MOTHER	247	102	80	0	546
ZH6MOTHER	247	26	41	0	250
ZH7MOTHER	247	13	21	0	107
ZH8MOTHER	247	130	79	0	453

Tab. 8 Descriptive statistics – poor single parent families

Variable	Observations	Mean	Std. Dev.	Min	Max
EDUCHILDREN	110	1.22	0.60	0	2
QUANTHOUSEADULT	189	2.02	0.66	1	3
QUANTLEISUREADULT	187	1.43	0.53	1	3
LINCADULT	191	1.52	2.06	0	6
EXPHELP	191	0.29	0.50	0	2
EPSADULT	191	0.21	0.41	0	1
SSADULT	191	0.50	0.50	0	1
ABIADULT	191	0.26	0.44	0	1
VTADULT	191	0.76	0.43	0	1
UNIADULT	191	0.14	0.34	0	1
HEALTHADULT	191	2.66	0.80	0	4
HEALTHCHILDREN	137	3.29	0.55	2	4
HELP	191	1.35	1.00	0	6
ZH0ADULT	191	645	80	380	913
ZH1ADULT	191	113	144	0	683
ZH2ADULT	191	13	53	0	400
ZH3ADULT	191	346	144	7	906
ZH4ADULT	191	22	49	0	460
ZH5ADULT	191	116	80	0	430
ZH6ADULT	191	24	32	0	146
ZH7ADULT	191	14	25	0	190
ZH8ADULT	191	137	87	0	500

Note: 98 % of the single parents are mothers.

The part played by the human capital indicators is clear and not unusual. HELP is an average indicator that gives information about the amount of help the household has obtained from other households. Taken with EXPHELP, it will enable an estimate to be made of the extent to which the household was able to engage in, and profit from, social networks.

The variables ZH... describe the time use of the adult family members. Only the most general activity categories were used. The time use survey would offer much more detailed information about the kind of activities, but the number of regressors had to be kept in a reasonable relation to the number of observations. When necessary, the author had the

regressors split up into more detailed sub-categories. Important or interesting results are mentioned in the text, however, without giving the tables.

Descriptive statistics concerning poor families for these regressors are given in Tables 7 and 8. Tables 7 and 8 also show the descriptive statistics for the output indicators children's education and health, parents' labour income and assessment of their own time use, and, finally, on the help the household exports, for the sub-sample of the poor. Comparing the standard deviations to the means, it can be seen that the variance of well-being is also noticeable among the sub-sample of the poor.

So the remaining task is to analyse which of the possible regressors - human capital and time use variables - can contribute to explaining the variance of the output indicators among the poor.

3. Results

The following method was chosen to find possible explanations for output differences among poor households. For each of the variables EDUCHILDREN, HEALTHCHILDREN, QUANTHOUSE..., QUANTLEISURE..., LINC..., EXPHELP a multivariate analysis, using human capital dummies and time use variables as independent variables, was made. As the dependent variables are ordinal, the SAS-Procedure "ordered Probit" was used.¹⁰ All regressors with an $\alpha > 10\%$ were excluded.¹¹ The results of the probit estimations are

¹⁰ SAS-Institute (1999, p. 2831 f.).

¹¹ α gives the probability that a coefficient estimated as a positive value will have a negative value in reality, or that a coefficient estimated as a negative value will have a positive value in reality.

documented in detail in Appendix A3. Table 9 gives an overview of these results. Estimated coefficient values and levels of significance (α) are omitted. Table 9 just shows the direction of the correlations with + (the more...the more...) and - (the more ...the less..). A missing entry means that there is no significant connection at a 10 %-level. Dependent variables are listed in the top row, regressors are listed at the left and the right margins.

Table 9 provides a great many explanations and the interpretations are therefore arranged under particular headings.

Human capital formation among children

Children's success at school depends on the parents' own education.¹² This is a well-known, widely documented result. Besides this, however, time use variables also play an important part.¹³ The more time the father or the single parent needs for paid work, the poorer is the performance of his or her child(ren) at school. Looking at the couples, we find additionally that the father's time spent in voluntary work and media utilization (watching TV) has a negative impact to his children's education. In summary, time that is not available for interaction with the children hinders children's human capital formation. In this context,

¹² ABIMOTHER is highly correlated with ABIVATER. For this multicollinearity either ABIFATHER or ABIMOTHER can stay in the set of significant regressors. In short, both mother's and father's university qualifications have a positive influence on the children's school performance.

¹³ The influence of domestic time use on children's success at school was shown by Hufnagel (2003) using data of the German Socio-Economic Panel as well.

Tab. 9 Synopsis: Significant regressors for poor families' output indicators

	Couples							Single parent families					For variable names see Tables 1,2,5,6.	
	EDUCHILDREN	HEALTHCHILDREN	QUANTHOUSEFATHER	QUANTLEISUREFATHER	LINC FATHER	LINC MOTHER	EXPHHELP	EDUCHILDREN	HEALTHCHILDREN	QUANTHOUSEADULT	QUANTLEISUREADULT	LINCADULT		EXPHHELP
+ : positive connection, the more..the more - : negative connection, the more...the less. Level of significance is 10 %.														
EPSFATHER														
EPSMOTHER										+	-	-		EPSADULT
SSFATHER														
SSMOTHER			-			+		+				-	-	SSADULT
ABIFATHER	+					+								
ABIMOTHER			-					+					-	ABIADULT
VTFATHER					+									
VTMOTHER			-				+			+				VTADULT
UNIFATHER				-										
UNIMOTHER									+					UNIADULT
HEALTHFATHER							+							
HEALTHMOTHER		+			+			+	+			+		GESUNDADULT
HELP							+						+	HELP
ZH0FATHER														
ZH1FATHER	-			-	+	-								
ZH2FATHER		+												
ZH3FATHER			+	-	-	+								
ZH4FATHER	-						+							
ZH5FATHER					-									
ZH6FATHER														
ZH7FATHER														
ZH8FATHER	-				-	+								
ZH0MOTHER							-							ZH0ADULT
ZH1MOTHER			+	+	-	+	-	-				+		ZH1ADULT
ZH2MOTHER														ZH2ADULT
ZH3MOTHER				+			-			+	-	-	+	ZH3ADULT
ZH4MOTHER		-		+										ZH4ADULT
ZH5MOTHER					+									ZH5ADULT
ZH6MOTHER							-							ZH6ADULT
ZH7MOTHER											+		+	ZH7ADULT
ZH8MOTHER				+	+	-					+			ZH8ADULT

the finding that the single mother's health¹⁴ state positively influences children's success at school should also be included.

Concerning the children's health state, we find a positive correlation with their mother's health state. There are several possible reasons for this correlation. First, biological predispositions could be responsible. Second, a mother might teach her children her healthy life style, or the children may copy it. Third, there may be certain household conditions that are favourable for health, and both mothers and children profit from them. The last two hypotheses can be supported by the observation that there are educational regressors that have a positive influence on children's health, i.e. adult's university degree and father's use of time for studying.

Finally, we should conclude with the result, that the adult's paid working time and the mother's time spent in voluntary work are associated with a poorer state of children's health.

Assessments of time use

The indication that too much household work was done coincides with the real amount of household work. Further fathers complain that they have to do much homework the more time their wives spend doing paid work. On the other hand, the mother's vocational qualifications seem to lessen the feeling that too much housework has to be done. Fathers' estimates that they have too much leisure are associated with less own work (paid or in the

¹⁴ Only the self-estimated health state is available in the German time use survey. Working with data of the German Socio-Economic Panel, the author found, however, that self-estimation correlates quite well with more objective proxies for the health state.

household) and more work of their wives (paid, household or voluntary). Fathers with a university degree have fewer problems with the amount of leisure. Wives complain less about having too much leisure, the more the husband is engaged in paid work, social life or watching TV. If she says she has too much leisure, it is connected with more time spent in media utilization and participation in social life.

For single parents, we also find that the statement that too much household work is done has a real basis in housekeeping time use. This is supported if the woman has completed vocational training. Her estimation of having too much leisure is associated with little housework and a lot of time for hobbies and media utilization. Completing extended primary school also favours the feeling of having too much leisure.

In conclusion, one can say that using abundant time in a productive way involves certain problems. Doing a lot of work at home often leads to the statement that too much of this is done. Media utilization (i.e. mainly watching TV) and sayings that you have too much leisure are connected. More formal education seems to lessen the feeling of having too much leisure.

Acquiring labour income

It is not surprising that labour income and time use for paid work are positively correlated. It is also well known that labour income is higher the more human capital is available. Among the couples, the working hours of husband and wife prove to be substitutes. We also find that the income earned by the father is positively correlated with mother's health, surely a hint for the fact that domestic conditions like a partner's sickness may reduce earning opportunities. Another result is that men engaged in paid work are also engaged in household

work. For the mothers, it holds, that more time used for paid work is associated with more time spent by the husband watching TV and less own time spent in watching TV.

Single parents do more paid work the better their health is. Paid work reduces the time used for housework.

It should be concluded that:

1. in two parent families the partners substitute in the acquirement of labour income.
2. in single parent families, labour force participation lowers the amount of housework, children's success at school and children's health.

Social networks

Table 9 shows that the outside help given by the household is positively correlated with help given to the household. This allows us to speak of the social network of the household in the sense of mutual giving and taking. For couples, we find that giving help is favoured by the human capital variables as the mother's vocational training and the father's health state. It seems clear that the father's time used in voluntary work leads to a higher value for the index EXPHELP. For the mother it holds that the more she works and the more time she takes for personal care and sports, the lower is her contribution to the outside help given by the household.

For single parents, we find that household work and hobbies have a negative influence on the amount of help given to others.

To conclude, it seems that the involvement in social networks depends on time resources and the abilities to contribute to the process of mutual giving and taking.

The results described above may be summarized as follows. Let us define human capital in a broad sense and include not only formal education and vocational training but also health, competence in managing the household and everyday life and life style. In this sense, human capital proves to play a central part in explaining why there are differences in the welfare indicators.

What is involved is primarily the transfer of human capital from parents to children. The more human capital the parents have the more can be given to their children. However, the opposite also holds, the less they have, the less they have to give to their children. This provides an explanation for the often described formation "dynasties" of social welfare recipients.

Human capital is also involved when we turn to the question of whether abundant time can be used in a meaningful way. It seems to be connected with problems of finding useful or enjoyable ways of using time and not suffering boredom, e.g. filling in time by watching TV.

Here, it could be seen that there are obviously problems with the matrimonial division of labour. Husbands especially complain that they have to do too much housework if their wife has income from working and if they do not have higher formal education. So it seems that gender irrelevant acceptance of duties is not as widespread as it should be, considering poor households' need to earn money. Besides this, earned income is positively correlated with the adults' human capital, a well-known result that this investigation replicates. For

single parents, there is a trade-off between going out to work and the children's success at school and health state.

Finally, concerning social networks, we have to recognise that these cannot be a cure-all of social policy. The possibility of engaging in them and thus profiting from them is conditional on the ability to make own contributions. Thus the poor are hindered once more by their lack of human capital.

Human capital transfer (in the broad sense defined above), or if this is impossible, the provision of adequate substitute services, thus turns out to be the key for social policy. Some implications of this will be discussed in the following section.

4. Implications

In this section implications for social policy and the teaching of home economics are sketched. Although there are interconnections, the section is split into two parts.

Social policy

Our investigation has shown that poverty and joblessness are not identical. Willingness and ability to work also exist among the poor. These can only be realised, however, if suitable jobs are available to them. This is the task of economic policy.

We found further, like the PISA-survey and others, that human capital "inherits". But not all poor households are affected to the same degree by the lack of human capital. There are different kinds of school careers for the children from poor households, too. This shows that there is a potential that could be open to further development by an adequate educational policy. Demands for specific provisions in the framework of public education to compensate poor children for the disadvantages associated with poverty are supported by the results of this investigation.

Given the principle of subsidiarity, parallel action, including counselling both within the school system and outside it, should be planned. This holds especially for the promotion of children's health. Various investigations report that success in this field is conditional on changes in domestic circumstances.¹⁵

Concerning the group of single parents, here we found a specific trade-off. Statistically mother's paid work has a negative impact on her children's success at school and health state. This seems to support the concept of the so called "Mutter-Kind-Modelle" (Mother-Child-Model), which prolong the time before the mother goes back to work by the use of relatively generous social transfers. However, Table 9 also showed that doing housework makes mothers very tired, when the single parent has vocational training. Hence, the interest of both single mothers and society in going back to work cannot be ignored. However, compensating provisions should be made in the field of public education and child care, if one decided to enforce single parents' economic independence.

¹⁵ For Germany Küppers-Hellmann (2001), Lach (2001).

Teaching of Home economics

It is well known that academic and vocational training play a central role in getting gainful employment. Additionally, however, this investigation was able to demonstrate that education is also helpful for using abundant time and for the ability to take part in social networks.

Now let us turn particularly to the teaching of home economics, from pre-school to post-school education.

The first thing to stress is that parents with a low own formal education can also contribute to their children's success at school. How this could be done in detail cannot be seen directly from Table 9, however, we can work it out. It involves supervising homework, staying in contact with the school, giving emotional stability to the children, promoting and directing their curiosity, and so on. The present investigation further showed, that supporting and encouraging the children is a task that concerns fathers as well as mothers.

The correlation found between mothers' and children's health states supports the hypothesis mentioned above, that a sensible life style has to be implemented for the whole household.

Households that have their backs to the wall with respect to their financial circumstances cannot afford friction in their matrimonial division of labour. So gender education should stress the value of flexibility in doing different tasks. Attitudes that undervalue household work would be completely wrong in this context.

A last educational goal is to teach a sensible life style. More specifically this would mean showing the ways in which disposable time can be used productively to manage everyday life und that there is no need to allow leisure to flow passively and watch TV too much.

For many years Home economics and its teaching have recognized the need to extend the curricula by imparting everyday life competence¹⁶. Education to cope with and overcome income poverty is alive and well kept in this discipline.

¹⁶ See for example Piorkowsky (2003b).

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Appendix

A 1 List of activities used by the Statistisches Bundesamt Deutschland

Statistisches Bundesamt
Gruppen I B und IX C

Zeitudbeterhebung 2001/02

Aktivitäten und Aktivitätsbereiche

PERSONLICHER BEREICH/ PHYSIOLOGISCHE REGENERATION

000 Nicht genauer bezeichnete Tätigkeiten

01 SCHLAFEN

010 Nicht genauer bezeichnete Tätigkeiten

011 Schlafen

012 Krank im Bett, etc.

02 ESSEN UND TRINKEN

020 Nicht genauer bezeichnete Tätigkeiten

021 Mahlzeiten einnehmen

03 ANDERE TÄTIGKEITEN IM

PERSONLICHER BEREICH

030 Nicht genauer bezeichnete Tätigkeiten

031 Waschen oder Anziehen

039 Andere eindeutig bestimmte Tätigkeiten

90 WEGEZEITEN PERSÖNLICHER

BEREICH / PHYSIOLOGISCHE

REGENERATION (BEREICH 0)

901 Wegezeiten Persönlicher Bereich /
Physiologische Regeneration

ERWERBSTÄTIGKEIT

100 Nicht genauer bezeichnete
Erwerbstätigkeit

11 HAUPTERWERBSTÄTIGKEIT

110 Nicht genauer bezeichnete
Haupterwerbstätigkeit

111 Bezahlte Arbeitszeit der Haupt-
erwerbstätigkeit (ohne Zeiten der
Qualifizierung/ Weiterbildung, siehe 13)

12 NEBENERWERBSTÄTIGKEIT

120 Nicht genauer bezeichnete
Nebenerwerbstätigkeit

121 Arbeitszeit der Nebenerwerbstätigkeit,
sofern sie im Tagebuch erkennbar ist
(ohne Zeiten der Qualifizierung/
Weiterbildung, siehe 13)

13 QUALIFIZIERUNG/ WEITER- BILDUNG FUER DEN BERUF

WAHREND DER ARBEITSZEIT

130 Nicht genauer bezeichnete Tätigkeiten

131 Besuch von Unterricht und Lehrver-
anstaltungen fuer den Beruf innerhalb
der Arbeitszeit (z.B. von Seminaren,
Kursen, Konferenzen u.ae.)

132 Besuch von Informationsveranstaltungen,
Messen u.ae.

133 Lernen in selbstorganisierten Gruppen
(z.B. mit Kolleg(inn)en)

134 Selbstlernen, insbesondere durch Nutzung
von Fachbüchern und -zeitschriften,
Unterrichts-, Fernunterrichtsmaterialien,
Lehrbriefen u.ae. Druckerzeugnissen

135 Selbstlernen, insbesondere durch Nutzung
des Computers - ohne Internet - (z.B.
Lernprogramme auf CD-ROM)

136 Selbstlernen - insbesondere durch
Nutzung des Internets (z.B. Internet
Based Learning oder Online-Recherche)

137 Selbstlernen, insbesondere durch Nutzung
von Fernseh-/ Video und Radio

138 Sonstiges Selbstlernen

139 Andere eindeutig bestimmte Tätigkeiten

14 TÄTIGKEITEN IN VERBINDUNG

MIT DER ERWERBSTÄTIGKEIT

140 Nicht genauer bezeichnete Tätigkeiten

141 Unbezahlte Arbeiten fuer den
Erwerbsbereich ausserhalb der
Arbeitszeit

142 Mit der Erwerbstätigkeit eines anderen
verbundene, unbezahlte Zeit

143 Praktikum

149 Andere eindeutig bestimmte Tätigkeiten

15 MIT EIGENER ARBEITSSUCHE

VERBUNDENE ZEIT

150 Nicht genauer bezeichnete Tätigkeiten

151 Arbeitssuche ueber das Arbeitsamt oder
einer Arbeitsvermittlungsgagentur

152 Eigene Arbeitssuche

159 Andere eindeutig bestimmte Tätigkeiten

16 MIT ERWERBSTÄTIGKEIT

VERBUNDENE PAUSEN

161 Pause waehrend der Arbeitszeit (sowohl
Haupt- als auch Nebenerwerbstätigkeit)

91 WEGEZEITEN ERWERBS-

TÄTIGKEIT (BEREICH 1)

911 Auf dem Weg zur Arbeit (Haupterwerb)

912 Auf dem Weg zur Arbeit (Nebenerwerb)

913 Wegezeiten Qualifizierung/
Weiterbildung waehrend der Arbeitszeit

Zeitverwendung in Deutschland 2001/02

PERSONLICHEN GRUENDEN (nicht

fuer Beruf oder Schule/ Universitaet)

230 Nicht genauer bezeichnete Tätigkeiten

231 Besuch von Unterricht und
Lehrveranstaltungen aus persoenlichen
Grunden (Seminare, Kurse,
Vorlesungen, Konferenzen u.ae. (z.B.
Sprachkurs fuer den Urlaub, Kurs zur
Geburtsvorbereitung)

232 Besuch von Informationsveranstaltungen,
Messen u.ae. (z.B. Ausstellungen und
Messen aus persoenlichen Grunden)

233 Lernen in selbstorganisierten Gruppen
(z.B. mit Freund(inn)en, Kolleg(inn)en,
Kommiliton(inn)en, Eltern/ Kindern)

234 Selbstlernen, insbesondere durch Nutzung
von Fachbüchern und -zeitschriften,
Unterrichts-, Fernunterrichtsmaterialien,
Lehrbriefen u.ae. Druckerzeugnissen

235 Selbstlernen, insbesondere durch Nutzung
des Computers - ohne Internet - (z.B.
Lernprogramme auf CD-ROM)

236 Selbstlernen, insbesondere durch Nutzung
des Internets (z.B. Internet Based
Learning)

237 Selbstlernen, insbesondere durch Nutzung
von Fernseh-/ Video und Radio

238 Sonstiges Selbstlernen (z.B. aus den
selbstgeschriebenen Unterlagen)

239 Andere eindeutig bestimmte Tätigkeiten

24 QUALIFIKATION/ FORT- UND

WEITERBILDUNG FUER DEN

BERUF AUSSERHALB DER

BEZAHLTEN ARBEITSZEIT

240 Nicht genauer bezeichnete Tätigkeiten

241 Besuch von Unterricht und
Lehrveranstaltungen (Seminare, Kurse,
Vorlesungen, Konferenzen u.ae.) zur
Qualifizierung fuer den Beruf ausserhalb
der Arbeitszeit

242 Besuch von Informationsveranstaltungen,
Messen u.ae. (z.B. Fachmessen fuer den
Beruf)

243 Lernen mit selbstorganisierten Gruppen
(z.B. mit Freund(inn)en, Kolleg(inn)en,
Kommiliton(inn)en)

244 Selbstlernen, insbesondere durch Nutzung
von Fachbüchern und -zeitschriften,
Unterrichts-, Fernunterrichtsmaterialien,
Lehrbriefen u.ae. Druckerzeugnissen

919 Andere/ unbestimmte Wegezeiten in
Verbindung mit Erwerbstätigkeit

2 QUALIFIKATION/BILDUNG

200 Nicht genauer bezeichnete Tätigkeiten

21 SCHULE UND HOCHSCHULE

(LEHRVERANSTALTUNGEN)

210 Nicht genauer bezeichnete Tätigkeiten

211 Unterricht und Vorlesungen

212 Pausen in der Schule/ Universitaet (siehe
161)

219 Andere eindeutig bestimmte Tätigkeiten

22 HAUSAUFGABEN/ VOR- UND

NACHBEREITUNG VON

LEHRVERANSTALTUNGEN

(SCHULE/HOCHSCHULE)

220 Nicht genauer bezeichnete Tätigkeiten

221 Besuch von zusätzlichen Unterrichts- und
Lehrveranstaltungen ausserhalb des
Stunden-/Studienplans von Schule/
Hochschule (z.B. Repetitorien,
Nachhilfekurse)

222 Besuch von Informationsveranstaltungen,
Messen u.ae. (z.B. Ausstellungen und
Messen mit inhaltlichem Bezug zur
Ausbildung, Besuch eines Fachvortrags)

223 Lernen mit selbstorganisierten Gruppen
(z.B. mit Freund(inn)en,
Kommiliton(inn)en, Eltern)

224 Selbstlernen, insbesondere durch Nutzung
von Fachbüchern und -zeitschriften,
Unterrichts-, Fernunterrichtsmaterialien,
Lehrbriefen u.ae. Druckerzeugnissen

225 Selbstlernen, insbesondere durch Nutzung
des Computers - ohne Internet - (z.B.
Lernprogramme auf CD-ROM)

226 Selbstlernen, insbesondere durch Nutzung
des Internets (z.B. Internet Based
Learning, gezielte Recherche fuer
Hausarbeit)

227 Selbstlernen, insbesondere durch Nutzung
von Fernseh-/ Video und Radio (z.B.
Telekolleg, Lehrvideos)

228 Sonstiges Selbstlernen (z.B. Vokabeln
lernen aus dem eigenen Heft)

229 Andere eindeutig bestimmte Tätigkeiten
(z.B. Retext abtippen)

23 QUALIFIKATION/ FORT- UND

WEITERBILDUNG AUS

Statistisches Bundesamt
Gruppen I B und IX C

- 245 Selbstlernen, insbesondere durch Nutzung des Computers – ohne Internet – (z.B. Lernprogramme auf CD-ROM)
- 246 Selbstlernen, insbesondere durch Nutzung des Internets (z.B. Internet Based Learning)
- 247 Selbstlernen, insbesondere durch Nutzung von Fernsehen/ Video und Radio
- 248 Sonstiges Selbstlernen (z.B. aus den selbstgeschriebenen Unterlagen)
- 249 Andere eindeutig bestimmte Tätigkeiten
- 92 WEGZEITEN QUALIFIKATION/ BILDUNG (BEREICH 2)**
- 921 Wegezeiten Schule/ Universität
- 922 Wegezeiten Zusätzliche Qualifikation/ Bildung
- 929 Andere/ unbestimmte Wegezeiten in Verbindung mit Qualifikation
- HAUSHALTSREPARATUR UND WARTUNG DER HAUSE**
- 300 Nicht genauer bezeichnete Tätigkeiten
- 31 ZUBEREITUNG VON MAHLZEITEN**
- 310 Nicht genauer bezeichnete Tätigkeiten
- 311 Mahlzeiten vor- und zubereiten
- 312 Backen
- 313 Geschirreinigung/ Tisch decken,
- 314 Halbarmachen/ Konservieren von Lebensmitteln
- 319 Andere eindeutig bestimmte Tätigkeiten
- 32 INSTANDHALTUNG VON HAUS UND WOHNUNG**
- 320 Nicht genauer bezeichnete Tätigkeiten
- 321 Reinigung der Wohnung
- 322 Reinigung des Hofes, Keller, Garage, etc., Abfallbeseitigung
- 323 Heizung
- 324 Verschiedene Rüstetätigkeiten und Vorbereitungen im Haushalt
- 329 Andere eindeutig bestimmte Tätigkeiten
- 33 HERSTELLEN, AUSBESSERN UND PFLEGEN VON TEXTILIEN**
- 330 Nicht genauer bezeichnete Tätigkeiten
- 331 Waschen
- 332 Buegeln und mangeln
- 333 Herstellung von Textilien
- 334 Ausbessern von Textilien
- 339 Andere eindeutig bestimmte Tätigkeiten
- 34 GARTENARBEIT, PFLANZEN- UND TIERPFLEGE**
- 340 Nicht genauer bezeichnete Tätigkeiten
- 341 Pflanzenpflege/ draussen
- 342 Pflanzenpflege/ drinnen
- 343 Pflanzenpflege ohne Ortsangabe
- 344 Nutzpflanze
- 345 Hausierpflege
- 346 Den Hund spazieren fuehren
- 347 Tierpflege, bei der nicht erkennbar ist, ob es sich um Nutz- oder Haustierpflege handelt
- 349 Andere eindeutig bestimmte Tätigkeiten
- 35 BAUEN UND HANDWERKLICHE TÄTIGKEITEN**
- 350 Nicht genauer bezeichnete Tätigkeiten
- 351 Hausbau und Renovierung
- 352 Wohnungsreparaturen
- 353 Herstellung, grossere Reparaturen von Ausstattungsgegenstaenden des Haushalts
- 354 Warnung und kleinere Reparaturen von Haushaltsgegenstaenden
- 355 Fahrzeugreparatur und –pflege
- 359 Andere eindeutig bestimmte Tätigkeiten
- 36 EINKAUFEN UND INANSPRUCHNAHME VON FREMDLEISTUNGEN**
- 360 Nicht genauer bezeichnete Tätigkeiten
- 361 Einkaufen
- 362 Persönlicher Besuch bei/ Inanspruchnahme von Dienstleistungsunternehmen und Verwaltungseinrichtungen/ Behoerdingen
- 363 Personengebundene Dienste
- 364 Medizinische Dienste
- 369 Andere eindeutig bestimmte Tätigkeiten
- 37 HAUSHALTSPLANUNG UND ORGANISATION**
- 370 Nicht genauer bezeichnete Tätigkeiten
- 371 Haushaltsplanung und –organisation
- 372 Tele - Shopping, Einkaufen per Telefon
- 373 Einkaufen per Internet, E – Banking
- 379 Andere eindeutig bestimmte Tätigkeiten
- 38 KINDERBETREUUNG**
- 380 Nicht genauer bezeichnete Kinderbetreuung
- 381 Koerperpflege und Beaufsichtigung
- 382 Hausaufgabenbetreuung, Anleitungen geben
- 383 Spielen und Sport mit eigenen Kindern bzw. Kindern, die im Haushalt leben
- 384 Gespräche mit eigenen Kindern bzw. Kindern, die im Haushalt leben
- 385 Mit dem Kind schmuesen
- 386 Kind begleiten und Termine im Zusammenhang mit dem Kind wahrnehmen
- 387 Betreuung von kranken und pflegebeduerftigen Kindern
- 388 Vorlesen/ Geschichten erzaehlen
- 389 Andere eindeutig bestimmte Tätigkeiten
- 39 UNTERSTUETZUNG, PFLEGE UND BETREUUNG VON ERWACHSENEN HAUSHALTSMITGLIEDERN**
- 390 Nicht genauer bezeichnete Tätigkeiten
- 391 Unterstuetzung von erwachsenen Haushaltsmitgliedern
- 392 Pflege und Betreuung von kranken oder aeulteren erwachsenen Familienangehoerigen
- 93 WEGZEITEN HAUSHALTSFUEHRUNG UND BETREUUNG DER FAMILIE (BEREICH 3)**
- 931 Wegezeiten in Verbindung mit Haus-, Gartenarbeit und Tierpflege (Bereiche 31-34)
- 932 Wegezeiten Bauen und handwerkliche Aktivitäten
- 933 Wegezeiten Einkaufen und Inanspruchnahme von Fremdleistungen (einschliesslich Haushaltsplanung)
- 934 Wegezeiten Kinderbetreuung
- 935 Wegezeiten Unterstuetzung von erwachsenen Haushaltsmitgliedern
- 936 Wegezeiten Pflege und Betreuung von Erwachsenen, die im eigenen Haushalt leben
- 939 Andere/ unbestimmte Wegezeiten in Verbindung mit Haushaltsfuehrung und Betreuung der Familie
- 4 EHRENAMTLICHE TÄTIGKEIT, FREIWILLIGENARBEIT, INFORMELLE HILFE**
- 400 Nicht genauer bezeichnete Tätigkeiten
- 160 Zeitverwendung in Deutschland 2001/02
- 41 AUSUEBUNG VON AEMTERN ODER EHRENAMTLICHEN FUNKTIONEN**
- 410 Nicht genauer bezeichnete Tätigkeiten
- 411 Ehrenamtliche oder freiwillige Arbeit fuer eine Organisation
- 412 Ehrenamtliche Mithilfe und Unterstuetzung
- 419 Andere eindeutig bestimmte Tätigkeiten
- 42 INFORMELLE HILFE FUER ANDERE HAUSHALTE**
- 420 Nicht genauer bezeichnete Tätigkeiten
- 421 Kinderbetreuung
- 422 Gartenarbeit
- 423 Putzen, aufräumen
- 424 Einkaufen und Besorgungen
- 425 Bei Nachbarn, Freunden, Verwandten nach dem Rechten sehen
- 426 Versicherungs-, Armer- und Behoerdingenangelegenheiten
- 427 Gespräche, Ratschlaege bei Problemen
- 428 Alten- und Krankenpflege
- 430 Reparatur und Wartung von Fahrzeugen
- 431 Tierpflege
- 432 Zubereitung von Mahlzeiten
- 433 Transport und Umzuge
- 434 Finanzielle Hilfe
- 439 Andere eindeutig bestimmte Tätigkeiten
- 44 TEILNAHME AN VERSAMMLUNGEN**
- 440 Nicht genauer bezeichnete Tätigkeiten
- 441 Politische und soziale Versammlungen
- 442 Teilnahme an religiösen Aktivitäten/ Zeremonien
- 443 Gebet, geistliche und geistige Entspannung
- 449 Andere eindeutig bestimmte Tätigkeiten
- 94 WEGZEITEN EHRENAMTLICHE TÄTIGKEIT, FREIWILLIGENARBEIT, INFORMELLE HILFE (BEREICH 4)**
- 941 Ausübung von Aemtern oder ehrenamtlichen Tätigkeiten
- 942 Informelle Hilfe fuer andere Haushalte
- 944 Teilnahme an Versammlungen
- 949 Andere/ unbestimmte Wegezeiten in Verbindung mit Ehrenamtlicher Tätigkeit oder Informeller Hilfe fuer andere Haushalte

Statistisches Bundesamt
Gruppen I B und IX C

**5 SOZIALES LEBEN UND
UNTERHALTUNG**

- 500 Nicht genauer bezeichnete Taetigkeiten
51 SOZIALE KONTAKTE
 510 Nicht genauer bezeichnete Taetigkeiten
 511 Gespraech
 512 Zu Besuch/ Besuch empfangen
 513 Familienfeiern und Feste privater Art
 514 Telefonate
 519 Andere eindeutig bestimmte Taetigkeiten
52 UNTERHALTUNG UND KULTUR
 520 Nicht genauer bezeichnete Taetigkeiten
 521 Kino
 522 Besuch von Theater und Konzerten
 523 Kunstausstellungen und Museen
 524 Bibliotheken
 525 Besuch sportlicher Ereignisse
 526 Ausfluege, Zoo, Zirkus,
 Vergnuegungsparks, Kirmes,
 Besichtigungen etc.
 527 Ausgehen (z.B. Cafes, Bistros, Kneipen,
 Discos, ohne Essen, z.B. Gaststaetten)
 529 Andere eindeutig bestimmte Taetigkeiten
53 AUSRUHEN/ AUSZEIT
 531 Ausruhen/ Auszeit
 532 Zeit ueberbruecken

**95 WEGEZEITEN SOZIALES LEBEN
UND UNTERHALTUNG (BEREICH 5)**

- 951 Soziale Kontakte
 952 Unterhaltung und Kultur (ohne Besuch
 von Sportveranstaltungen
 953 Besuch von Sportveranstaltungen
 959 Andere/ unbestimmte Wegezeiten in
 Verbindung mit Sozialem Leben und
 Unterhaltung

**6 TEILNAHME AN SPORTLICHEN
AKTIVITAETEN BZW.
AKTIVITAETEN IN DER NATUR**

- 600 Nicht genauer bezeichnete Taetigkeiten
61 KOERPERLICHE BEWEGUNG
 610 Nicht genauer bezeichnete Taetigkeiten
 611 Spazieren gehen
 612 Wandern
 613 Joggen, Walking
 614 Fahrrad fahren, Radwandern,
 Mountainbiking

Zeitverwendung in Deutschland 2001/02

**98 WEGEZEITEN MASSENMEDIEEN
(BEREICH 8)**

- 981 Massenmedien
**99 SONSTIGE WEGEZEITEN /
HILFSCODES**
Sonstige Wegezeiten
 990 Unbestimmtes Reisen/ unbestimmte
 Wegezeiten
 991 Reisen/ Fahren um seiner selbst willen
 992 Reisen/ Fahren zum oder vom Urlaubsort
 993 Reisen/ Fahren zur oder von der
 Zweitwohnung oder dem
 Wochenendhaus
Hilfscodes
 995 Ausfuellen des Tagebuches
 998 Nicht bestimmt verwendete Freizeit
 999 Unbestimmte Zeitverwendung (keine
 Angaben)

- 724 Experimentieren (z.B. Elektro-,
 Chemiebaukasten)
 725 Korrespondenz
 729 Andere eindeutig bestimmte Taetigkeiten

73 SPIELE

- 730 Nicht genauer bezeichnete Spiele
 731 Gesellschaftsspiele
 732 Spiele allein
 733 Computerspiele
 734 Glücksspiele
 739 Andere eindeutig bestimmte Taetigkeiten
**97 WEGEZEITEN HOBBYS UND
SPIELE (BEREICH 7)**
 971 Kuenste, Hobbys und Spiele

8 MASSENMEDIEEN

- 800 Nicht genauer bezeichnete Taetigkeiten
81 LESEN
 810 Nicht genauer bezeichnete Taetigkeiten
 811 Zeitungen lesen
 812 Zeitschriften lesen
 813 Buecher lesen
 814 Stich vorlesen lassen / Zuhoeeren beim
 Vorlesen
 819 Andere eindeutig bestimmte Taetigkeiten
82 FERNSEHEN UND VIDEO
 820 Nicht genauer bezeichnete Taetigkeiten
 821 Fernsehen
 822 Videos ansehen

**83 RADIO, MUSIK- ODER ANDERE
TONAUFNAHMEN**

- 830 Nicht genauer bezeichnete Taetigkeiten
 831 Radio hoeren
 832 Anhoeren von Musik- oder anderen
 Tonaufnahmen
 833 Anhoeren von Hausmusik / musikalischen
 Darbietungen im privaten Kreis

84 COMPUTER

- 840 Nicht genauer bezeichnete Taetigkeiten
 841 Programmierung, Installation und
 Reparatur des Computers
 842 Informationen durch den Computer
 gewinnen
 843 Kommunikation ueber den Computer
 849 Andere eindeutig bestimmte Taetigkeiten

- 615 Ski fahren, Schlittschuh laufen, Rodeln,
 Eishockey
 616 Ballspiele
 617 Ruckschlagspiele
 618 Gymnastik, Turnen
 619 Fitness, Aerobic
 620 Koerperliche Entspannungsuellungen
 621 Schwimmen, Wassergymnastik
 622 Rudern, Kanu, Segeln, Surfen
 623 Inline-Skating, Skateboard
 624 Kampfsport (Judo, Karate, Aikido,
 Boxen)

- 625 Kegeln, Bowling, Boule spielen
 626 Tanzen/ Tanzsport
 627 Schiessport, Sportschuetzen
 628 Leichtathletik
 629 Reiten
 639 Andere eindeutig bestimmte Taetigkeiten
64 JAGEN, FISCHEN UND SAMMELN
 640 Nicht genauer bezeichnete Taetigkeiten
 641 Jagen und Fischen
 642 Beeren, Pilze und Kraeuter sammeln
 649 Andere eindeutig bestimmte Taetigkeiten
**65 RUESTZEITEN FUER SPORTLICHE
AKTIVITAETEN**
 650 Nicht genauer bezeichnete Taetigkeiten
 651 Ruestzeiten fuer sportliche Aktivitaeten

**96 WEGEZEITEN TEILNAHME AN
SPORTLICHEN AKTIVITAETEN
(BEREICH 6)**

- 961 Eigene Sportausuebung
7 HOBBYS UND SPIELE
 700 Nicht genauer bezeichnete Taetigkeiten
 71 KUNSTLERISCHE TAETIGKEITEN
 710 Nicht genauer bezeichnete Taetigkeiten
 711 Visuelle und handwerkliche Kuenste
 712 Darstellende Kuenste, Musizieren
 713 Literatur und Schreiben
 719 Andere eindeutig bestimmte Taetigkeiten
**72 TECHNISCHE UND ANDERE
HOBBYS**
 720 Nicht genauer bezeichnete Taetigkeiten
 721 Sammeln etc.
 722 Modellbau und Basteln
 723 (Video-) Filmen/ Fotografieren

A2 Definitions of the variables EDUCHILDREN and HEALTHCHILDREN

We consider all children aged 11-18 living in a given household. For the n-th child in the household the following dummies are used:

HRSKIND_n =1, if the child attends "Hauptschule" (extended primary school) or "Realschule" (secondary school preparing for vocational training), =0 otherwise.

GYMKIND_n =1, if the child attends "Gymnasium" (secondary school preparing for university), =0 otherwise

BABKIND_n =1, if the child undergoes a vocational training, =0 otherwise.

From this we form the index:

$$\text{BILDUNGKIND}_n = \text{HRSKIND}_n + 2 \cdot \text{GYMKIND}_n + \text{BABKIND}_n$$

The index EDUCHILDREN then is the mean of the indexes BILDUNGKIND_n, taken over all children n living in one household. The weights used in BILDUNGKIND_n need not be discussed, because EDUCHILDREN is used as an ordinal variable in the ordered Probit .

Health state is documented in the time use survey data as an 4 level ordinal variable.

HEALTHCHILDREN is just the mean health state of all children in aged 11-18 living in one household.

A3 Probit results

The following tables show coefficient estimates and α -errors. It should be noted that - contrary to intuition - in Probit results negative coefficients stand for a positive relation (the more .. the more) whereas positive coefficients stand for a negative relation (the more... the less) between dependent and independent variable. Only regressors with an α -error < 10 % were considered.

Tab. 10 Poor couples: Dependence of the index EDUCHILDREN on time use and parents' education. Observations=121, Pseudo-R²=9 %.

Variable	Coefficient	α
Intercept	-2.67	0.0001
Intercept2	0.046	0.31
Intercept3	0.17	0.04
Intercept4	0.21	0.02
Intercept5	1.86	0.0001
Intercept6	2.04	0.0001
Intercept7	2.1	0.0001
ABIFATHER	-0.48	0.09
ZH1FATHER	0.0012	0.08
ZH3FATHER	0.0021	0.0466
ZH8FATHER	0.0038	0.005

Tab. 11 Poor couples: Dependence of the index HEALTHCHILDREN on time use and parents' education. Observations=149, Pseudo-R² = 10 %.

Variable	Coefficient	α
Intercept	-1.45	0.0024
Intercept2	0.92	0.0128
Intercept3	1.04	0.0056
Intercept4	1.43	0.0002
Intercept5	1.50	0.0001
Intercept6	2.94	0.0001
Intercept7	3.04	0.0001
Intercept8	3.31	0.0001
Intercept9	3.35	0.0001
HEALTHMOTHER	-.45	0.0002
ZH2FATHER	-0.004	0.0792
ZH4MOTHER	0.0026	0.0803

Tab. 12 Poor couples: Dependence of the index QUANTHOUSEFATHER on time use and parents' education. Observations=243, Pseudo-R²=6 %.

Variable	Coefficient	α
Intercept	-1.21	0.0001
Intercept2	1.53	0.0001
Intercept3	1.88	0.0001
VTMOTHER	0.48	0.0056
SSMOTHER	0.65	0.0005
ABIMOTHER	0.56	0.0108
ZH3FATHER	-0.001	0.0704
ZH1MOTHER	-0.0015	0.0272

Tab. 13 Poor couples: Dependence of the index QUANTLEISUREFATHER on parents' time use and education. Observations=244, Pseudo-R²=9 %.

Variable	Coefficient	α
Intercept	0.33	0.42
Intercept2	1.46	0.0001
Intercept3	2.70	0.0001
UNIFATHER	0.43	0.0972
ZH1FATHER	0.0025	0.0001
ZH3FATHER	0.0016	0.0395
ZH1MOTHER	-0.027	0.0014
ZH3MOTHER	-0.0018	0.0154
ZH4MOTHER	-0.0028	0.0701
ZH8MOTHER	-0.0019	0.0803

Tab. 14 Poor couples: Dependence of the index QUANTLEISUREMOTHER on parents' time use and education. Observations=244, Pseudo-R²=10 %

Variable	Coefficient	α
Intercept	-0.37	0.48
Intercept2	1.56	0.0001
ZH1FATHER	0.0022	0.0011
ZH3FATHER	0.0022	0.0088
ZH5FATHER	0.0027	0.0857
ZH8FATHER	0.0025	0.0500
ZH5MOTHER	-0.0028	0.0257
ZH8MOTHER	-0.0045	0.0002

Tab. 15 Poor couples: Dependence of father's labour income class on education and time use. Observations=245, Pseudo-R²=10 %.

Variable	Coefficient	α
Intercept	1.06	0.006
Intercept2	0.04	0.1547
Intercept3	0.09	0.0232
Intercept4	0.31	0.0001
Intercept5	0.54	0.0001
Intercept6	0.90	0.0001
Intercept7	1.20	0.0001
Intercept8	1.84	0.0001
Intercept9	2.51	0.0001
Intercept10	2.96	0.0001
HEALTHMOTHER	-0.22	0.0265
VTFATHER	-0.35	0.0586
ZH1FATHER	-0.0033	0.0001
ZH3FATHER	-0.0013	0.0443
ZH1MOTHER	0.0028	0.0001

Tab. 16 Poor couples: Dependence of mother's labour income class on education and time use. Observations =245, Pseudo-R²=22 %.

Variable	Coefficient	α
Intercept	1.62	0.0001
Intercept2	0.10	0.0420
Intercept3	0.42	0.0001
Intercept4	0.92	0.0001
Intercept5	1.53	0.0001
Intercept6	1.83	0.0001
Intercept7	2.05	0.0001
RSMOTHER	-0.48	0.0441
ABIFATHER	-0.68	0.0062
ZH1FATHER	0.0012	0.0554
ZH8FATHER	-0.0034	0.0262
ZH1MOTHER	-0.0051	0.0001
ZH8MOTHER	0.0044	0.0205

Tab. 17 Poor couples: Dependence of the outside help given by the household on time use and human capital. Observations=244, Pseudo-R²=7 %

Variable	Coefficient	α
Intercept	-2.45	0.0068
Intercept2	0.49	0.0001
Intercept3	0.88	0.0001
Intercept4	1.25	0.0001
Intercept5	1.47	0.0001
Intercept6	1.80	0.0001
Intercept7	2.07	0.0001
Intercept9	2.48	0.0001
Intercept8	2.24	0.0001
Intercept10	2.70	0.0001
Intercept11	2.86	0.0001
Intercept12	2.95	0.0001
Intercept13	3.06	0.0001
Intercept14	3.20	0.0001
Intercept15	3.30	0.0001
Intercept16	3.40	0.0001
Intercept17	3.56	0.0001
Intercept18	3.82	0.0001
VTMOTHER	-0.43	0.0098
HEALTHFATHER	-0.14	0.0868
HELP	-0.16	0.0486
ZH4FATHER	-0.006	0.0002
ZH0MOTHER	0.0026	0.0075
ZH1MOTHER	0.0012	0.0989
ZH3MOTHER	0.0016	0.0155
ZH6MOTHER	0.0037	0.0329

Tab 18 Poor single parents: Dependence of the index EDUCHILDREN on the adult's time use and education. Observations=110, Pseudo-R²= 6%.

Variable	Coefficient	α
Intercept	-0.65	0.1087
Intercept2	0.35	0.0099
Intercept3	0.40	0.0050
Intercept4	2.05	0.0001
Intercept5	2.16	0.0001
SSADULT	-0.62	0.0163
ABIADULT	-0.86	0.0110
HEALTHADULT	-0.27	0.0485
ZH1ADULT	0.002	0.0080

Tab 19 Poor single parents: Dependence of the index HEALTHCHILDREN on the adult's time use and education. Observations =135, Pseudo-R² = 3 %

Variable	Coefficient	α
Intercept	-1.21	0.0008
Intercept2	0.33	0.0197
Intercept3	0.38	0.0103
Intercept4	2.05	0.0001
Intercept5	2.07	0.0001
Intercept6	2.29	0.0001
UNIADULT	-0.52	0.0897
HEALTHADULT	-0.24	0.0514
ZH1ADULT	0.0011	0.0985

Tab. 20 Poor single parents: Dependence of the index QUANTHOUSEADULT on the adult's time use and education. Observations=189 , Pseudo-R²= 3%.

Variable	Coefficient	α
Intercept	-0.08	0.7647
Intercept2	1.64	0.0001
VTADULT	-0.54	0.0063
ZH3ADULT	-0.001	0.0841

Tab. 21 Poor single parents: Dependence of the index QUANTLEISUREADULT on the adult's time use and education. Observations=187 Pseudo-R²= 9 %.

Variable	Coefficient	α
Intercept	0.34	0.28
Intercept2	2.17	0.0001
HSADULT	-0.48	0.037
ZH3ADULT	0.0016	0.0221
ZH7ADULT	-0.0077	0.0370
ZH8ADULT	-0.0034	0.0018

Tab. 22 Poor single parents: Dependence of adult's labour income class on education and time use. Observations=191, Pseudo-R²= 28 %.

Variable	Coefficient	α
Intercept	0.77	0.17
Intercept2	0.026	0.32
Intercept3	0.25	0.0018
Intercept4	0.63	0.0001
Intercept5	1.53	0.0001
Intercept6	2.82	0.0001
ZH1ADULT	-0.0065	0.0001
ZH3ADULT	0.0015	0.0808
EPSADULT	0.63	0.0263
SSADULT	0.58	0.0075
HEALTHADULT	-0.23	0.0847

Tab. 23 Poor single parents: Dependence of the outside help given by the household on time use and human capital. Observations=191, Pseudo-R²=10 %

Variable	Coefficient	α
Intercept	0.44	0.40
Intercept2	1.70	0.0001
EPSADULT	1.43	0.0092
SSADULT	1.24	0.0163
ABIADULT	1.31	0.0148
HELP	-0.27	0.0030
ZH3ADULT	-0.0016	0.0279
ZH7ADULT	-0.0098	0.0066