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Working Paper

The social embeddedness of consumption - towards the relationship of income and expenditures over time in Germany

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**The Social Embeddedness of Consumption –
Towards the Relationship of Income and
Expenditures over Time in Germany**

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Abstract

Expenditures and their patterns over time are expressions of the standard of living of individuals, households, and the society they live in. Nevertheless social and economic analysis focused rather on the analysis of production than on consumption, and income was widely used as a main indicator of (economic) well-being. On the other hand, expenditure regards as a measure to describe and estimate the participation of households in the wealth of nation. Therefore, there is an interest in the relationship of income and spending money. It is often considered that expenditure and income are the two sides of the same coin called "social inequality". This assumption implies a strong relationship between these two measures of welfare inequality. Due to the lack of longitudinal data in Germany, we used repeated cross-sectional data (RCS) in our empirical analysis which is based on the West German Income and Expenditure Survey (IES) in 1973, 1978, 1983, 1988 and 1993. The IES's are representative cross-sections of all West German households, collected by the Federal Statistical Office of Germany. Descriptive methods are used to separate age, cohort, and period effects just as the RCS enables us to use a linear model to shed some light on this issue. The analysis indicates that the relationship between income and expenditure is given but weak: The higher the income the looser the concrete expenditure structure in terms of real consumption is. All in all, the social organisation of consumption is a research object in itself to obtain information about the living standard of individuals and households.

Zusammenfassung

Ausgaben und deren Veränderung im Zeitablauf sind Ausdruck des Lebensstandards von Individuen, Haushalten und der Gesellschaft, in der diese leben. Dennoch bezog sich die soziologische und ökonomische Analyse eher auf die Güterproduktion denn auf deren Konsum, und Einkommen wurde als ein Maß zur Beschreibung der (ökonomischen) Wohlfahrt verwendet. Andererseits dienen die Ausgaben als Maß zur Beschreibung und Abschätzung der Partizipation von Haushalten an der Wohlfahrt einer Gesellschaft. Und darin liegt das Interesse am Verhältnis zwischen Einkommen und Ausgaben begründet. Es wird häufig unterstellt, daß Ausgaben und Einkommen zwei Seiten derselben Medaille darstellen, die als "soziale Ungleichheit" bezeichnet wird. Diese Annahme impliziert eine Beziehung zwischen den beiden Maßzahlen zur Beschreibung der Wohlfahrtsungleichheit. Die empirische Analyse basiert auf den Einkommens- und Verbrauchsstichproben (EVS) der Jahre 1973, 1978, 1983, 1988 und 1993 für Westdeutschland. Bei den EVS handelt es sich um repräsentative Querschnitterhebungen, die vom Statistischen Bundesamt durchgeführt werden. Auf der Grundlage dieser Daten wird versucht, Aussagen über die Beziehung zwischen Einkommen und Ausgaben zu treffen. Es werden vornehmlich Methoden der

deskriptiven Statistik verwendet, um Alters-, Kohorten- und Periodeneffekte isolieren zu können. Weiterhin ermöglicht die Verbindung der einzelnen EVS die Verwendung induktiver statistischer Methoden. Die Ergebnisse zeigen, daß Einkommen und Ausgaben nicht in einem festen Verhältnis zueinander stehen. Je höher die Einkommen sind, desto offener ist der Zusammenhang zur konkreten Ausgabenstruktur. Insgesamt betrachtet bedeutet dies, daß die soziale Organisation des Konsums für sich genommen als Forschungsgegenstand zur Erlangung von Informationen über den Lebensstandard von Individuen und Haushalten mit berücksichtigt werden muß.

Contents

1.   Introduction

Expenditures and their patterns over time are expressions of the standard of living of individuals, households, and the society in which they live. Although Adam Smith in *Wealth of Nations* (1776; 1937: 625) already noted, that "… consumption is the sole end and purpose of all production …", social and economic analysis focused predominantly on the analysis of production as a main indicator of "economic" well-being. Much of previous research has considered expenditures and income as two different sides of the same coin called "social inequality", and a linear relationship between both dimensions of welfare inequality is implied according to this common assumption. Aim and scope of our paper is to question the relationship between income and expenditures.

Up to decades a study a study of inequality has been concentrated on income and it has taken for granted the firm relationship between income, consumption and welfare. Our discussion is led by the assumption that a simple "one-to-one-fit" between social and economic practice of human actors regarding what people "are" by occupation and what they "do" by behaviour and their life-style in society is neither theoretically nor empirically self-evident. People have their own logic and capacities in spending their money. Some people save parts of their income, whereas others spend their income completely – another group of people runs up debts by spending more money then they earn. Especially the later behaviour could lead to deprivation and poverty, therefore needs policy measures and is a common social problem in contemporary societies. Therefore the analysis of the consumption of households is of special interest, because there exists no ultimate reason for people to behave in one way or in another. This also means, that there is not necessarily a strong relationship between income and expenditures.

The thesis of our paper is that consumption in society does not reflect the effects of pure division of income only but has to be viewed in the social embeddedness of consumption. Our empirical findings for Germany give some evidence concerning the weakness of the relationship between income and expenditures and therefore rise doubt on the assumption of the "two-sided" coin called welfare.

The paper is structured as follows: First, a short theoretical discussion about the meaning and relevance of consumption in societies is given, which leads to our thesis about the relationship between income and expenditures (2.). After that, the indispensable part of every empirical analysis, a description of the data and the methodology is given (3.). Subsequent to that, the presentation of our empirical results (4.) follows, differentiated a description of the development of expenditures (4.1.1) and its structure (4.1.2.) over time, and a presentation of the estimation and its results (4.2.). Some comments on the findings and further research, which follows from the results, are given in the last chapter (5.).

2.   Consumption in Stratified Societies

Taking a historical perspective, we see a changing context of production and consumption in society (Becher 1980) which finds a reflection in changing discussion topics within the history of economic and social thought (Stihler 1998). Whereas Max Weber (1905/06; 1993) associated the success of the industrial revolution with the Protestant ethic and the inherent ascetism, the interpretation has changed during the course of this century. Economy and society are seen to have been increasingly dependent on consumer demand which is ready and able for consumption so that the constant rise in the production of goods finds a market outlet (Campbell 1987). Whereas for Max Weber ascetism was a sort of foundation-stone for the development of a capitalist economic system, in the mid- and late twentieth century the "bond" between production and demand, the cycle between production, sale and consumption, became a pillar of modern economic society: no production without demand and vice versa.

Although Daniel Bell (1976: 75) maintains that, in respect to modes of consumption, a new stage of capitalism was already observed in the 1920s[1], a brief survey of major discussion lines in the 20th century reveals that consumption has become a major topic only *after* World War II. Galbraith's (1958) characterisation of an "affluent society" or those provocative statements by Packard (1959) concerning waste in society may be regarded as starting points of a discussion about consumption and its consequences. One may draw a line to fairly recent works such as Richard Sennett's (1977) critique of urban civilisation, Neil Postman's (1985) attack on the amusement industry or George Ritzer's analysis of the "McDonald Society" (Ritzer 1993) in order to find good examples to describe the different intellectual environment of today and the last century.

Riesman and his colleagues were among the first to give a name to this strange Janus-faced facet of 20th century life: "social individualisation" (Riesman et al. 1950; Riesman 1954). The ambivalent relationship between individual and society was captured in the popular term of the lonely crowd. Comparing this classical study with the more recent work of Ulrich Beck (1992) shows strikingly the similarity of argumentation in certain aspects. It is open to debate whether a term like "individualisation" is appropriate to capture the complex phenomenon of diverse tendencies in social stratification and mobility. However, there are strong indications that the course of social development has led to a loss of societal value coherence and the emergence of a variety of life-styles. Differentiation is a result of a person's position in the markets of wealth and prestige that still allows for some degree of freedom of life-style choice (Zablocki/Kanter 1976: 293). In the same process, the individual is faced with a growing

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[1]   "… The 'new capitalism' (the phrase was first used in the 1920s) continued to demand a Protestant ethic in the area of production (the realm of work) - but to stimulate a demand for pleasure and play in the area of consumption …"; (Daniel Bell 1976: 75).

need to embed everyday routines of consumption into new social structures of relevance. The "expressive self" is aware of the fact that consumer goods also function as communicators, as "symbols of class status" (Goffman 1951). Thorstein Veblen' s(1899; 1973) notion of "conspicuous consumption" indicated this sociologically and economically important logic of consumptive rationality, later reformulated in Fred Hirsch` sterm of a "positional economy" (Hirsch 1978).

One can thus distinguish between various different explanatory accounts of consumer culture (Warde 1990). A question concerning the relationship between social stratification and consumption explores how patterns of consumption and leisure activities are determined by the social positions of actors, measured on a vertical stratification scale. Such study is less concerned with the change in average consumer behaviour over time, than with the contemporaneous juxtaposition of choices, tastes and habits as concrete expressions of competing life-styles within societies[2].

Contemporary discussion about the – so-called – variety of life-styles (Bögenhold 1994; 1996) is concerned with the question, how far the cultural determination of life-forms beyond the material and/or structural survey of life-chances has to be theoretically born in mind or empirically taken into account. It is a question of the *relationship* between life-chances and life-styles as a pattern of life-conduct (see Katz-Gerro/Shavit with empirical findings for the case of Israel 1998). The concept of "life-style" must be understood as a relatively stable pattern of organising everyday life in the framework of given life-situations and available resources. Forms of organising household work and employment, patterns of consumption, life-styles time-budgeting and planning for the future are all, on an empirical level, among the most important components of life-styles (Zapf et al. 1987: 14-16).

The relationship between ownership or possession of material resources and their utilisation for specific cultural purposes was already discussed in the writings of the classics (Featherstone 1991). However, much of contemporary discussion on life-styles and consumption patterns acknowledges the work of Pierre Bourdieu, especially his book *La distinction* (1979) which is based on Georg Simmel and influenced by Max Weber. Research on stratification and consumption may also have a lot of further excellent and important references but – as Paul DiMaggio puts it – "… the starting point for any discussion of life-styles and consumption patterns must be the work of Thorstein Veblen and Pierre Bourdieu …" (DiMaggio 1994: 458)[3].

Especially, recent discussion in the area of socio-economics may provide a profound key to understand complex phenomena of social action within the framework of economic sociology

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[2]   Recent literature includes authors as Lury (1996), Harris (1996), Gronow (1997), Slater (1997), or Warde (1997).

[3]   For analyses in this direction see for example Ganzeboom (1989).

(see here important contributions in Smelser/Swedberg 1994 and in Nee/Brinton 1998). Ideas by Mark Granovetter (1985) and Michael Sobel (1981) on the social embeddedness of social action and economic behaviour help to come to a more appropriate theoretical understanding of social consumption in contemporary societies than some crude argumentation in popular economics can do (Luo 1996). Concerning the theoretical status-quo-debate in economic sociology the changing relationship between sociology and old and recent forms of institutional economics is highly interesting (Velthuis 1999). Research on consumption has to acknowledge the interplay of different academic fields in order to paint a more sufficient picture[4].

As we know from the sociology of knowledge, human action is organised by systems of social relevance (Schütz 1932; 1974). Consumption sociology has to ask for such patterns of social sense instead of taking it for granted. Cycles of fashions are an issue of academic debate for more than 100 years now (see for a recent interesting attempt Gladwell 2000). Baudrillard expressed this perspective in his "consumer society" as follows: "… Consumption is neither a material practise, nor a phenomenology of 'affluence'. It is not defined by the food we eat, the clothes we wear, the car we can drive, nor by the visual and oral substance of images and messages, but in the organisation of all this as signifying substance. Consumption is the virtual totality of all objects and message presently constituted in a more or less coherent discourse. Consumption, in so far as it is meaningful, is a systematic art of the manipulation of signs …" (Baudrillard 1988: 21-22). Sobel (1981) argues in the same line, as for him, consumption is the measurable expression of life-style, "… a distinctive, hence recognisable, mode of living. …" (Sobel 1981: 28). Consumption is the activity, that best captures what is meant by life-style (Sobel 1981: 47) and therefore reflects far more than only the rationality of the individuals about how to deal with the availability of resources.

Doing research along the lines indicated by Granovetter, Sobel or Baudrillard stressing the importance of communication circles may have many different implications for practical research. For example: Under a given budget constraint different life styles are moulded. This implies, that – with the same budget constraints – the relationship between expenditures and earnings and the kind of usage of the available resources, the allocation of income on the specific categories of goods or the structure of expenditures could be very different. Therefore it could be assumed, that a close functional relationship as it is stated mainly in the

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[4]   According Ackerman (1997), ongoing discussion has begun to open specific frontiers of disciplines: "… A new interdisciplinary area of research on consumption has emerged in the last 10-15 years, drawing contributions and participants from sociology, anthropology, history, philosophy, literature, and marketing - even, on occasion, from economics …"; (Ackerman 1997: 651). At least since Veblen' s writings, one can find a controversial dialogue between mainstream consumer theory in economics and more socio-economically grounded approaches (see Veblen 1909 and Drakopoulos/Karayiannis 1996). For an attempt to combine the different theoretical approaches see Sobel (1981).

micro-economic literature – from the beginning with Engel (1857) and Schwabe (1886) until recent Engel-curve analysis (see for an overview e. g. Faik 1995) – diminished with increasing wealth.

Basically these considerations – in connection with the aspects of basic needs and a minimum amount of income to survive – leads to the following: With increasing income, the variation of expenditures also increases, as is shown in Figure 1. In this figure, some assumptions respectively well known results of the empirical research are implicitly engaged. First, if the complete income would be consummated, the expenditure-income relationship would be represented by the 45° line. Second, in higher income classes, the saving rate is higher for all households in the average. This means that in higher income classes the difference between the 45° line and the lower bound of the ability to save increase as also the difference between the x-axis and the upper bound of the ability to save. Third, households have to make a minimum of expenditures in order to secure their existence on a least possible level. So it is impossible for the households, to save all the money. Therefore, the upper bound of the ability to save is always larger than zero.

Figure 1:   The Diminishing Relationship between Income and Expenditures
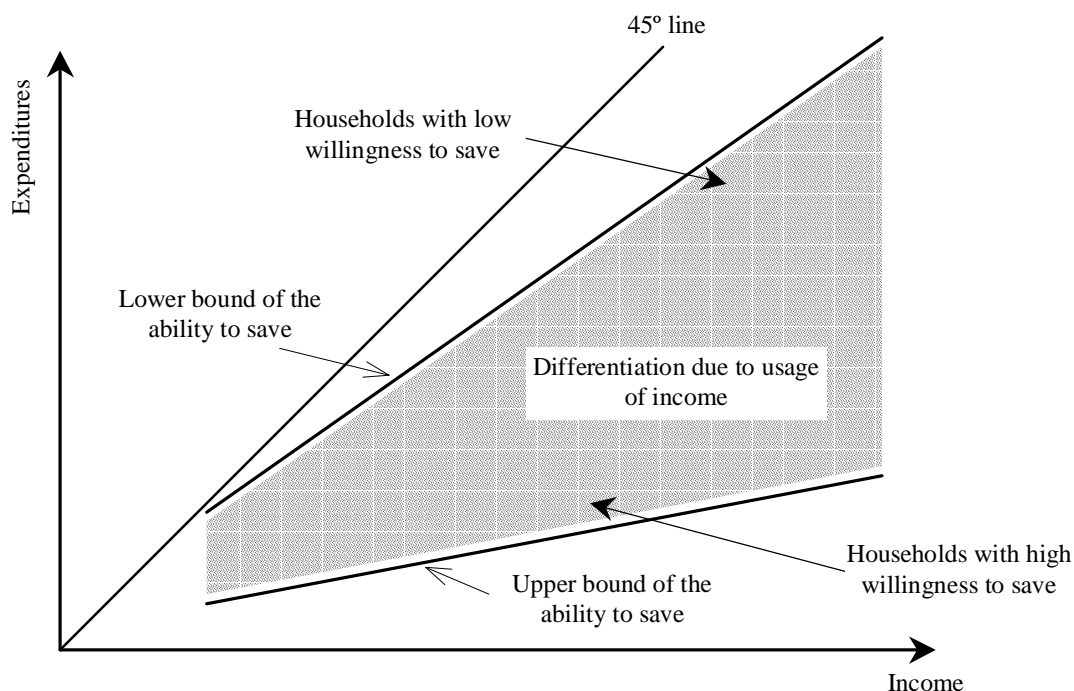
Keeping Figure 1 in mind, the question of the empirical part of the study is, whether such a figure could be empirically identified. We want to ask for the relative autonomy of the sphere of consumption in opposite to the sphere of income. It is just questioned how the relationship of earnings and consumption and the household behaviour concerning consumption over time shows in reality. What conclusion can be drawn from empirical analysis about the

embeddedness of consumption in stratified societies? The following empirical part of the paper deals with these aspects.

3.   Some "Technical" Remarks on the Data[5] and Methodology

First, it has to be emphasised, that it is necessary to differentiate between age-classes and cohorts[6], because

1. life-styles may differ between cohorts – for Germany for example it is mentioned in the literature that the willingness to save is lower for younger cohorts than for the elderly[7];
2. life-styles my vary over one person's life.

That means, that a longitudinal analysis has to be done to isolate such age- and cohort-effects. Ideally, data which cover the whole life-cycle of an individual are necessary. Unfortunately, for Germany there is no data available which cover the expenditures over time of the same households or individuals even for shorter time periods. But it is partly possible to manage these lack of information in using repeated cross-sectional data.

Our empirical analysis is based on the West German Income and Expenditure Survey (IES) of the years 1973, 1978, 1983, 1988 and 1993[8]. The IES's are representative cross-sections of West German households[9], collected by the Federal Statistical Office of Germany. The IES's contain information about basic socio-economic household characteristics such as age, gender, employment status and marital status of head of household, and detailed information about household earnings and expenditures, mainly computed by diaries.

The IES's are independently drawn sets of cross-sections of the population. Therefore it is impossible to construct a true householdpanel, because the included households are not identical in each year. Nontheless it is possible to separate cohorts. This is done by aggregating the households into age categories of 5 different years of birth. If an age-class is built in which the head of household is between 60 to 64 years old in the year 1988, the cohort includes people born between 1924 and 1928 (see Figure 2)[10].

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[5]   We thank Prof. Dr. Richard Hauser, Johann Wolfgang Goethe-University Frankfurt, and the Federal Statistical Office of Germany for making the data available.

[6]   Period-effects could also lead to structural changes of expenditures. Somewhat drastical examples are the oil-price shocks in the 70th, which highers the relative prices of energy an motor fuel. The influence of such period-effects could only be identified over time. But it is an open question, whether such effects are different for cohorts and therefore causes differences in life-styles which will last for a longer time.

[7]   See for example Fachinger (1996: 60 pp.).

[8]   For other research on consumption with these data sets see Börsch-Supan/Stahl (1991), Börsch-Supan (1992), Fachinger (1998a).

[9]   The data excludes the households with a monthly net income over 15,000 DM in 1973, over 20,000 DM in 1978, over 25,000 DM in 1983 and 1988, and over 35,000 DM in 1993.

[10]   For a similar way in using repeated cross-sectional data see for example Jäntti et al. (1996).

Figure 2:   *Schematic Graph of Recording the Cohort, Born in 1924 to 1928*
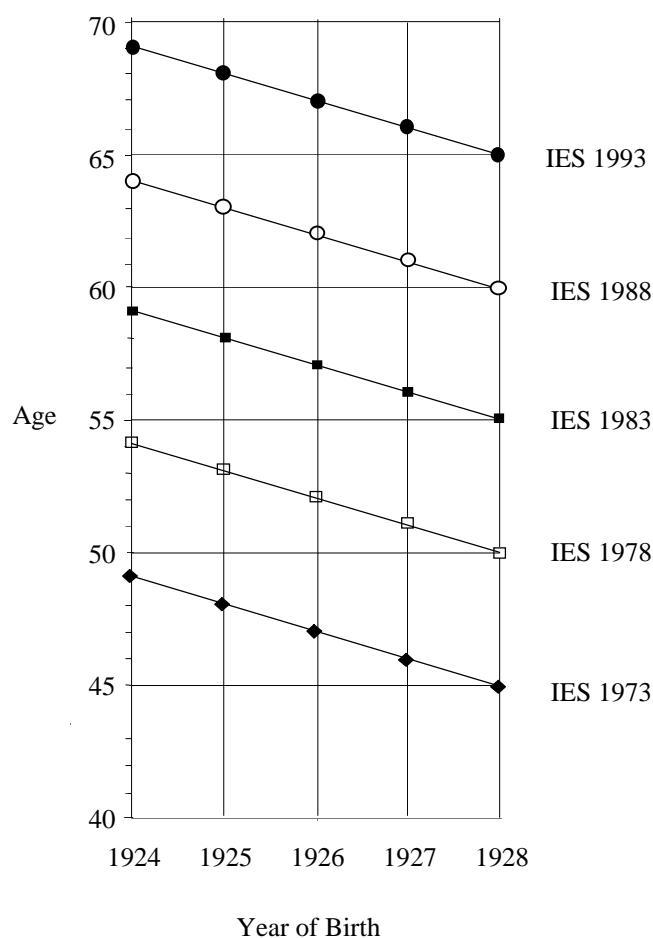
As Figure 2 shows, the aggregation makes it possible to cover each cohort over the whole time between 1973 and 1993. No birthcohort is included twice or more often in an age-class and no birthcohort is disregarded. This kind of dataset makes it possible to separate age- and cohort-effects. Because of the time intervalls between each survey special period-effects could not be isolated[11].

Beside these advantages over single cross-section data, this method implies major problems:
– first, the unit of individual or household is not identical over time,
– second, the time interval between each datum is five years,
– third, the type respectively the structure of a household will not be constant over time, for example the number of persons in a household may change.

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[11]   Take for example the oil price shock in 1974. Such an external shock has – among others – a far-reaching impact on the relative prices of products. However, the economic consequences of the oil price shock could not be identified, because no data are available between 1973 and 1978. For an extensive discussion of the pros and cons of the usage of the IES data for longitudinal analysis see Fachinger (1998a: 125 pp.).

To deal with the last mentioned problem, we analyse a later period in the life-cycle in which the household structure may be relatively constant: the so called "empty nest phase"[12]. In this phase, the children have left the household and only the parents remain (two-person household). Sometimes in the later phase of a household one partner has died and it remains a single-person household. In the age-class of 45 to 54 years between 37 and 50 percent of all households consist of one or two-persons. In the next age-class of 55 to 64 years the percentage increases to 70 percent and for the next higher age-class to 87 and 92 percent[13]. This states that larger households are seldom found in the higher age-classes. Therefore we only analyse higher age-classes and single- and two-person households. Their household structure is predominantly constant.

Fortunately, the datasets include about 45,000 households (see table 1 in the appendix) and hence are large enough to use only the information about elderly single- and two-person households. The sample enables us to distinguish between gender, age and cohort as well.

Consumption expenditures are combined in nine main categories. These nine groups are composed of several subgroups as shown in table 2 in the appendix. The table shows the heterogeneity of the nine groups. For example, in the main group 7 the expenditure for an aircraft is by far larger than for a little toy. But not only the prices of goods are different, this holds also for the character of goods:
– there are heterogeneous groups which include normal, superior and inferior goods[14] such as group 8,
– there are groups which mainly contain inferior goods like the groups 1, 2 and 3, and
– there are groups which include mainly superior goods as group 5, 7, or 9.

The information about household incomes are also very specific. We use the aggregate "net household income". This variable includes permanent rather than transitory income[15]. It is the sum of income of all household members and includes for example earnings, public and private pensions, rent income and others minus taxes and social contributions. Dissolving of savings, selling of assets, heritage or gains are not covered within net household income. Hence such actions are relatively seldom in higher age-classes, neglecting these income components and the relevance to distinguish between permanent and transitory income is not an aspect of real concern for our analysis.

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[12]   See for example Gilly/Enis (1982: 274).
[13]   Statistisches Bundesamt (1995: 254 pp.)
[14]   A superior good can be characterised as a good with a high price elasticity, which means that the demand for such a good is very sensitive to price changes. An inferior good therefore is a good with relative low sensitivity for price changes.
[15]   For an overview of the discussion about the transitory aspects of income or earnings mobility see for example Atkinson et al. (1992) and especially for Germany Fachinger (1991) or Trede (1997).

In time series analysis of economic data a complicated issue is the comparability of the data over time. We use the consumer price index for all households for deflation to make the data comparable over time.

4. Results

4.1. Description of Expenditures

4.1.1. Development of the Total Amount over Time

To give an impression of and a feeling for the atypical method, we will show some results of the general development first. Regarding one of the unsolved questions in consumer analysis, it is still unknown, whether the profiles of expenditures over the life-cycle are invers-U-shaped res. decline from a certain age[16]. Figure 3 shows the development of expenditures of aging single- (SP) and two-person (TP) households. In each age group, the expenditures of TP-households are about 15,000 to 20,000 DM higher then the expenditures of SP-households. Furthermore there is a tendency of reduction in the profiles of the cohort members as well as between cohorts with growing age. The expenditures of older cohorts are lower.

Overall Figure 3 seems to illustrate a decline in expenditures with increasing age for the two households types. The profiles are showing a regularity in the development over time. All profiles are increasing between the "first" and the "second" age-class, that means between the first survey 1973 and the second in 1978, especially the time series of the three older cohorts. Thereafter, in principle all profiles are declining more or less up to the last age class: at the end of the age-expenditure profiles, as at the beginning, the profiles are increasing. As this occurs especially for the older cohorts, it could be the result of the need of specific goods in the later stage of life, such as goods for health and personal care. But, at first this is an evidence for the influence of period-effects. To illustrate the regularity, the time series are plotted against the year of the survey in Figure 4.

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[16] A lot of empirical analysis has been done to solve this question – see for example Monroe et al. (1942), Gieseman/Rogers (1986), Harrison (1986), Garner/Shipp (1990), Moschis (1992), Crockett (1960), Hall/Mishkin (1982), Hamermesh (1984), Deaton et al. (1989), Tedford et al. (1986), Browning et al. (1985), Lawrance (1991), Danziger et al. (1983), Alessie et al. (1989), Ghez/Becker (1975), Van der Gaag/Smolensky (1982), Fullerton/Rogers (1993) – but the question still remains, because in the main analyses data of a single cross-section were used. Therefore no possibility exists to make a statement about the development of expenditures over time not to mention the impossibility of distinguishing between age-, period- and cohort-effects.

Figure 3:   *Expenditures of Private Single- (SP) and Two-Person (TP) Households*
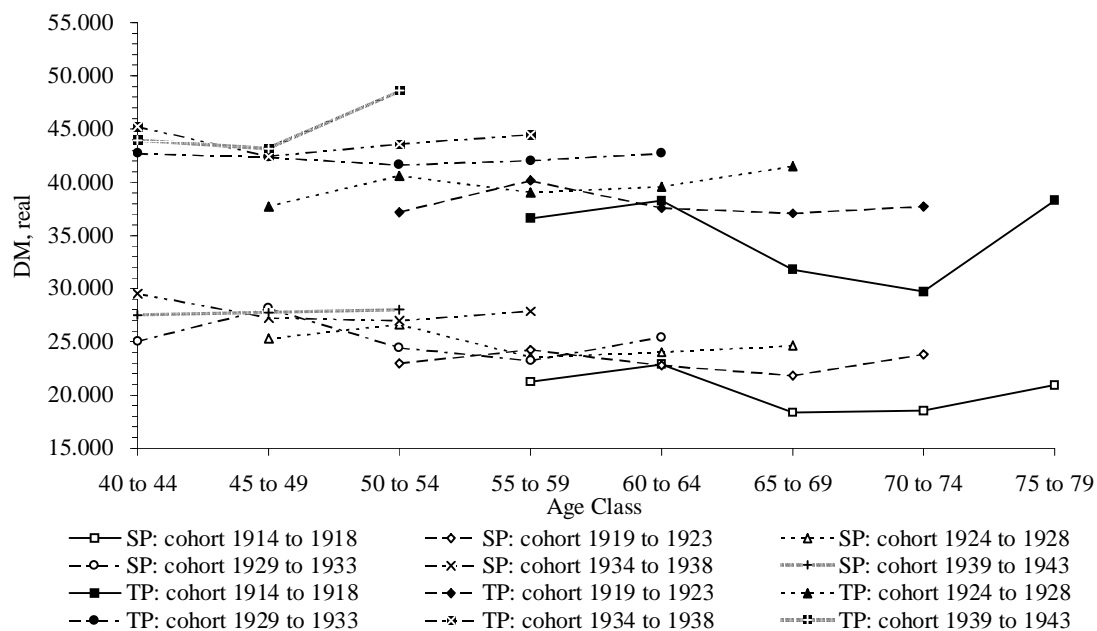
Figure 4:   *Expenditures of Private Single- (SP) and Two-Person (TP) Households*

Figure 4 highlights the increase between 1973 and 1978 and between 1988 and 1993 and the decrease in the expenditure profiles in between. The time series show the typical effect of cross-section. In the specific surveys the expenditures of the older cohorts are lower than the expenditures of the younger cohorts which suggests to be interpreted as a cohort-effect. But one also has to consider the profiles in Figure 3.

Comparing for example the expenditures of the SP-household in the age-class 50 to 54 with the age-class 60 to 64 of the TP-households, shows 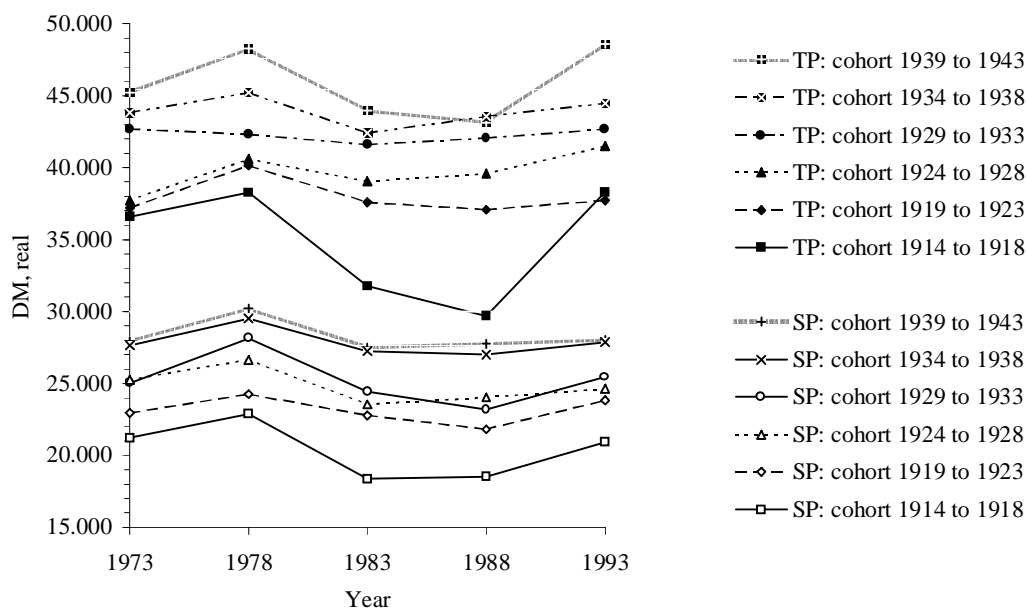that each of the older cohorts spends less money. But particularly as a result of the period-effect in 1978 it is not valid, that the older cohort spends less money in the same age-class. The impression in Figure 4 is the result of the age and period-effects. There is evidence for a cohort-effect, abstract from the period-effects: older cohorts seem to have lower expenditures not only in the same year but also in the same age-class. An age effect can not be identified. This result is contrary to that of many other analysis, which yield an invers-U-shaped and a declining profile beyond the age of 40 or 50. An estimation of a linear trend indicates no statistically significant positive or negative slope.

4.1.2.   The Structure of Expenditures over Time

To gain a first insight into the changing structure of expenditures with increasing age, we calculate the share of the nine categories. The following figure shows the structure of expenditures exemplary for the two-person households of the oldest cohort 1914 to 1918.

Figure 5:   Structure of Expenditures for Two-Person Households of the Cohort 1914 to 1918
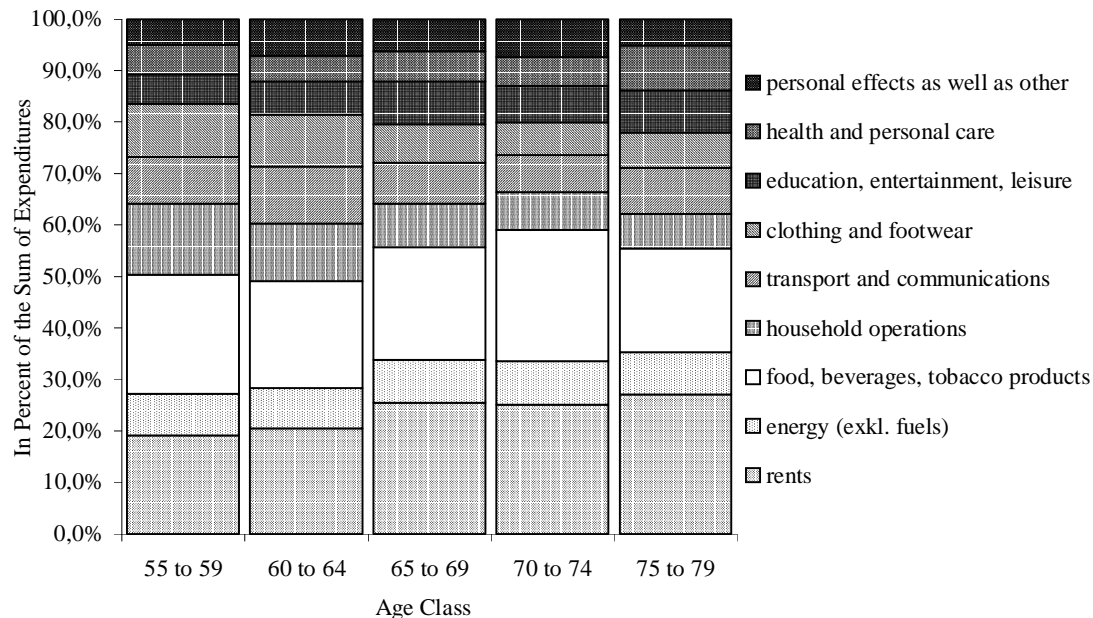
The coarse structure for all households is approximately the same as in figure 5. The main deviations are that the expenditures of single-person households for rents are higher in all age-classes and the expenditures for food, beverages and tobacco products as well as for commodities and services for transport and communications are lower. The dominant expenditure group is the one for food, beverage and tobacco products. It is remarkable that

the share of this expenditure group, which mainly contains inferior goods, is relatively constant over age-classes and time.

The figures show clearly structural changes with increasing age. The expenditures for rent for example are increasing between the youngest and oldest age-class by 42.1 percent for the single- and by 26.3 percent for the two-person household. The expenditures for commodities and services for personal effects, services of the lodging trade as well as others are also increasing. Correspondingly the share of other expenditure groups are declining with age. This is especially remarkably for furniture, household appliances and other commodities and services for household operation, expenditures for commodities and services for clothing and footwear as well as for transport and communications.

As the structural changes shown in Figure 5 are the same for all cohorts, it is therefore a general phenomenon and not age- or cohort-specific. It seems to be the result of period-effects which induce income and substitution effects.

As mentioned earlier, the character of the goods is different. The results are indicating, that with increasing age of the head of the household in the structure of expenditures a lot of restructuring takes place. But this does not necessarily mean, that this is due to the ageing of people. The reason for the changing of the structure could be manifold and caused by a lot of factors. For example, the relative prices of goods are by no means constant over time and therefore alteration in the price structure can cause households – with the same preferences and budget – to change their composition of expenditures. It seems to be, that the changes take place in respect to the character of specific goods. The share of groups, which enclosed only or be dominated by inferior goods seems to increase, whereas groups which contains mainly superior goods are becoming less important.

It could be considered as a rule that expenditures are carried out of available earnings. So it may be that the structural changes in expenditures are the response to earnings changes. The results of empirical investigations are not clear. On the one side, empirical analysis are showing a strong relationship between actual earnings and actual expenditures[17], on the other side, there is also evidence for a "looser" relationship especially in analyses considering the permanent income of households[18].

4.1.3. Expenditures and Income

To gain a first insight in the relationship of the net household income and the expenditures, they are plotted against age-classes. Figure 6 and 7exemplary shows the time series for the

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[17] See for an overview Fachinger (1998a).
[18] For example Hall/Mishkin (1982) or Lawrance (1991).

two-person households. We plot the time series for the cohorts in two separate figures for better reading.

Figure 6:   Expenditures [EX] and Net Income [NI] of Two-Person Households–
Cohorts 1914 to 1918, 1924 to 1928 and 1934 to 1938
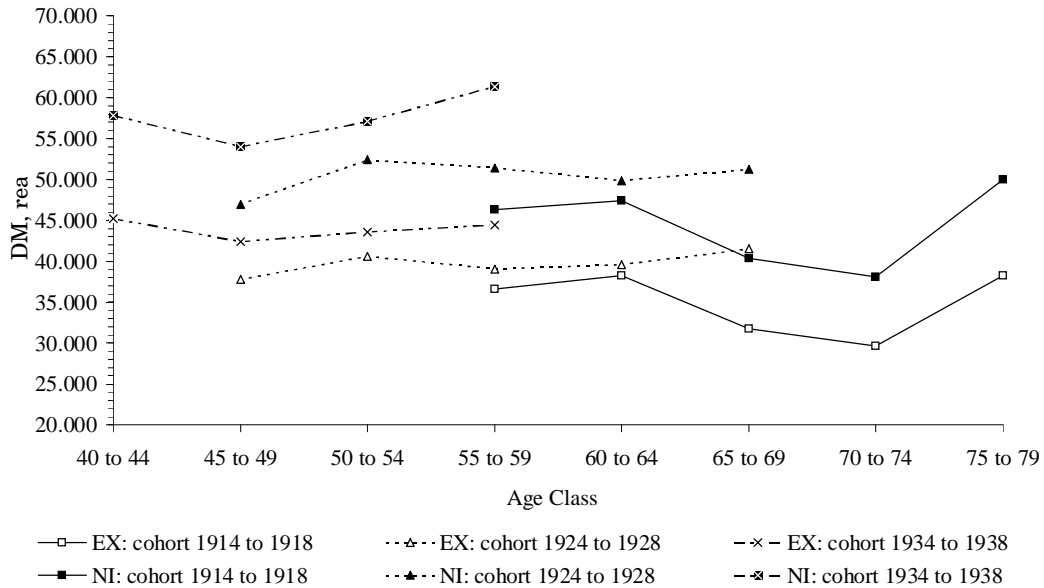
Figure 7:   Expenditures [EX] and Net Income [NI] of Two-Person Households –
Cohorts 1919 to 1923, 1929 to 1933 and 1939 to 1943
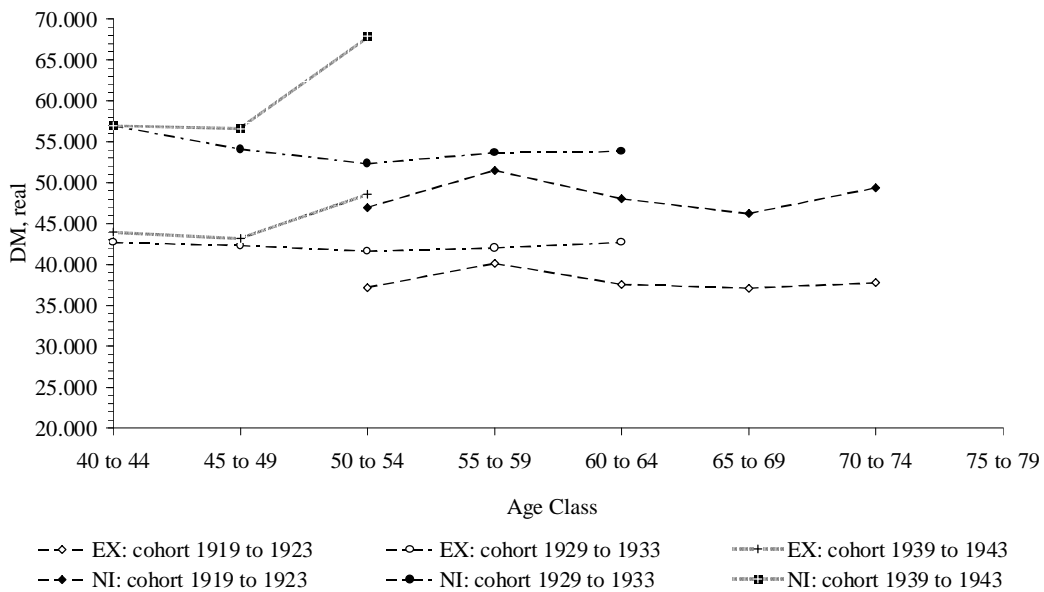
As the figures show, the patterns of the time series of household expenditures and net household income are nearly the same for all cohorts. Only the level of net household income

is higher. The households spend about 78 percent of their earnings. The Figure 6 indicates a strong linear relationship between the two variables.

To visualise the relationship and as an "optical test" in Figure 8 the average of cohort earnings is plotted against the average of cohort expenditures.

Figure 8:   Expenditures and Net Income of Single- [SP] and Two-Person [TP] Households

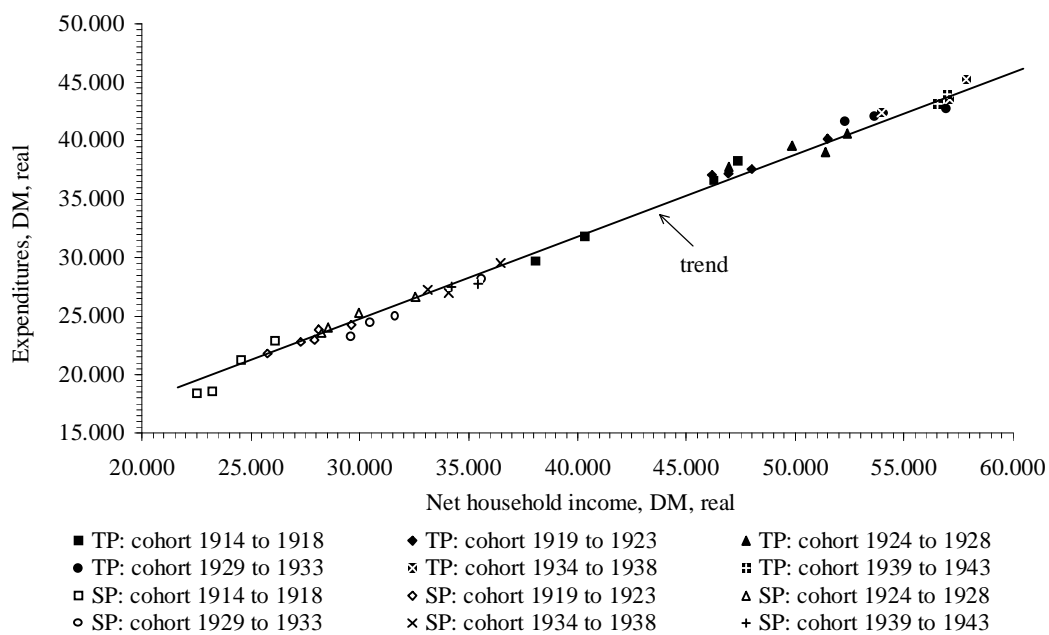|		
■ TP: cohort 1914 to 1918	◆ TP: cohort 1919 to 1923	▲ TP: cohort 1924 to 1928
● TP: cohort 1929 to 1933	⊠ TP: cohort 1934 to 1938	∷ TP: cohort 1939 to 1943
□ SP: cohort 1914 to 1918	◇ SP: cohort 1919 to 1923	△ SP: cohort 1924 to 1928
○ SP: cohort 1929 to 1933	× SP: cohort 1934 to 1938	+ SP: cohort 1939 to 1943

Figure 8 demonstrates a result, which is well known from many cross-section analyses: the strong linear relationship between earnings and expenditures. The value for R^2 of an estimation of the linear trend is 0.9942. The consideration of the time dimension in the analyses therefore seems to generate no other knowledge and confirms the current and it indicates as if the hypothesis, that we stated in the beginning is not true.

But if the single-person households are additionally differentiated between women and men, first sights of heterogeneity are to become clear. Figure 9 and 10 exemplify, that women with the same amount of net income as men spend more of their net income. The figures contain hints, that the differences between women and men in spending their money get looser with higher income. In the lowest income region, the average amount is nearly the same. The cuneiform structure, which was drafted in Figure 1, shows itself already on this – only differentiated between gender– relatively abstract level. Therefore some empirical evidence for the hypothesis mentioned in chapter 2 exists, that the close functional relationship between income and expenditure diminishes with increasing wealth.

Figure 9:   Expenditures and Net Income of Single-Person Households of Women
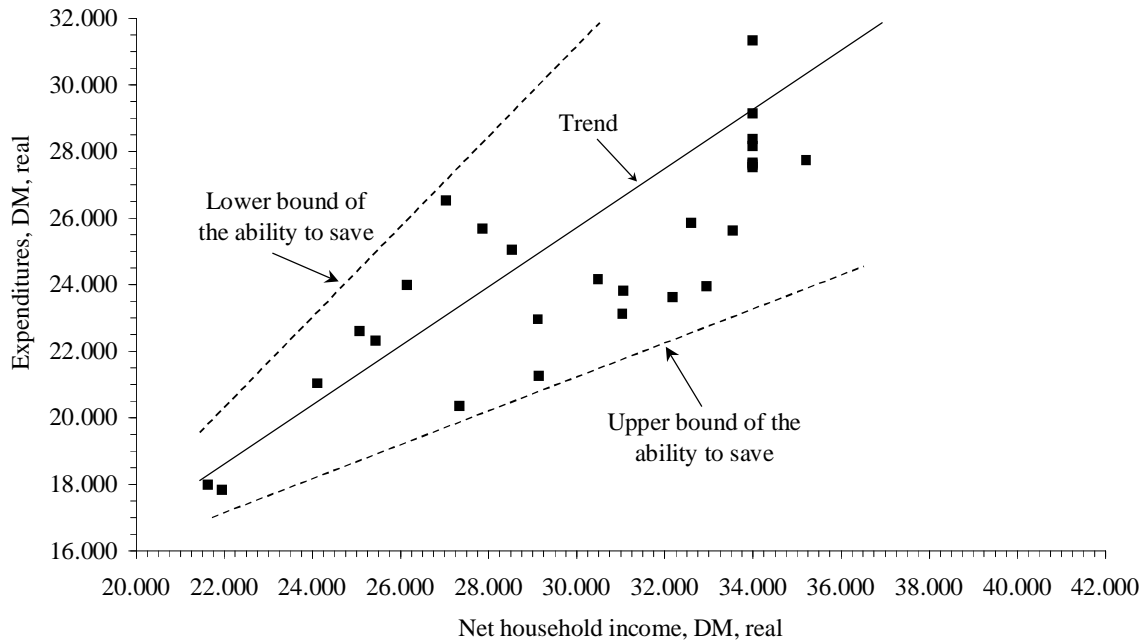
Figure 10:   Expenditures and Net Income of Single-Person Households of Men
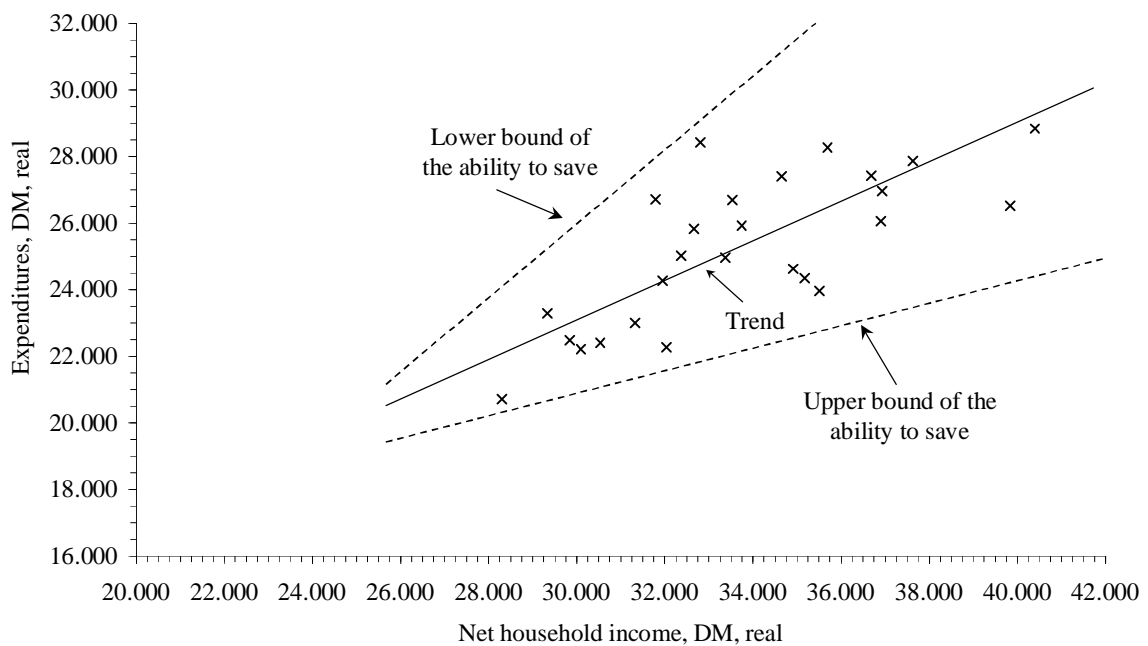
Furthermore, the linearity of the relationship between income and expenditures is stronger for women than for men. The relation between expenditures and income, measured with the Pearson-correlation coefficient, is 0.98 for women and 0.75 for men. An estimation of the linear trend yields a value for R^2 of 0.95 for women and 0.57 for men. This also means, that single-person households of men are more heterogeneous than single-person households of

women. The heterogeneity in each specific group therefore seems to be more or less covert up by averaging.

To summarise the results of the descriptive analysis, a disaggregation of groups leads to a tremendous deviation from the (linear) relationship. These deviations event out by averaging, so that on the higher aggregation level of single- and two-person households the relationship between average net household income and average expenditures are relatively strong.

4.2. Estimation

To shed some more light on the relationship between expenditures and income we will use inductive methods. Here, the obvious weakness of the relationship between expenditures and income should lead to insufficient estimates, even using an appropriate method.

The general form of the estimated model is[19]:

$$c_{i(i)t} = \beta_0 + \mathbf{X}'_{i(i)t} \cdot \beta + \varepsilon_{i(i)t}, \quad i(t) = 1, \dots, N, \quad t = 1, \dots, T.$$

where

each individual is indexed by i(t), for in repeated cross-section data the individuals are potentially different in each cross-section,

$c_{i(i)t}$ is the total expenditure of the i'th household,

β_0 and β are coefficients of the regressors,

$X_{i(t)}$ is a vector of regressors,

and $\varepsilon_{i(t)i}$ are the residuals.

The $x_{i(t)t}$ are age, income, sex, marital status[20], type of household[21], and household size. Dummys for the year of the collection of the dataset, for the cohort, and for the employment status[22] are included in the equation. To take into account the possibility of a decrease in the marginal utility of income – a common assumption in micro-economic theory – and to deal with the potential curve-linear relationship between expenditures and income, additionally income in quadrate are used.

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[19] See for other approaches e. g. Browning et al. (1985), Deaton et al. (1985) or Moffit (1993).

[20] Separated in four categories: (1) single, (2) married, (3) widowed, (4) divorced or living apart.

[21] Women living alone, men living alone, parent living with one child, parent living with two children, couples, parents with one child, parents with two children, parents with three children, parents with four children, and other.

[22] The six categories are: (1) self-empoyed persons, (2) farmers, (3) civil servants, (4) white collar workers, (5) blue collar workers, (6) other (including pensioners, unemployed persons, recipients of supplementary benefits).

In the chosen design we have to deal with multicollinearity[23]. To handle this, first, for each dummy variable, one type has to be omitted and these variables serve as a bench mark to which the dummy categories are compared with. Secondly, we tested the presence of remaining multicollinearity in three ways, because it exists not one measure which gives correct information whether or not multicollinearity has to be perceived as a substantial problem and only some "rules of thumbs" are existing. For a first insight, we calculated the correlation among the regressors. All estimated values are below 0.8 and therefore no indication of multicollinearity occurs[24]. As this is a rather weak measure for the severity of multicollinearity, we used a second method and calculated the variance inflation factor (VIF). Here it is considered, that a value of 5.0 or more is an indication of severe multicollinearity[25]. The maximum value for the VIF-statistic of the exogenous variables is 2.6, so there seems to be no multicollinearity, which has to be taken into account. Third, the method of matrix decomposition was used. As a rule of thumb for this measure it is mentioned, that the so called condition index has to be greater than 30 to indicate the presence of serious multicollinearity[26]. As the maximum value of the index for the data used is around 25, also this method did not indicate severe multicollinearity.

As all methods used did not advert the presence of severe multicollinearity, we do not have to take multicollinearity into account, and we can use the traditional estimation procedures. Furthermore it has to be mentioned, that we are not looking for estimating the "true" relationship between income and expenditures, we just want to point out, that a relationship, as it is assumed in using linear regression techniques, is not appropriate in this respect. Table 1 shows the results of the estimation.

Several conclusions can be drawn from the results. The estimated coefficients of the exogenous variables are significant and the signs are in the correct direction. For example, households with a female head of household have lower expenditures than those with a male head of household so the sign must be negative, which it is: the standardised coefficient of the variable gender is -0.03.

It was mentioned, that the marginal utility of income might decrease with increasing income and therefore income in quadrate is used as a variable to deal with the curve-linear relationship. The estimation indicates, that there is indeed a decrease in the marginal utility of income as for both coefficients the value of the t-statistic is quite large and the signs are in the correct direction – positive for income and negative for income squared.

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[23]   See for a general description and discussion Judge et al. (1985: 896-938).
[24]   Judge et al. (1988: 868).
[25]   Judge et al. (1988: 869).
[26]   Judge et al. (1988: 871).

Table 1:   *Estimation Results of the Coefficients of the Linear Regression*

Variable	Coefficients		Standardised	Values of the
	b	Standard error	coefficients	t-statistic
Constant	12,720.5	71.79		177.2
Income	0.6	0.00	0.812	1,720.0
Income²	-0.0	0.00	-0.210	-548.2
Age	-814.0	7.55	-0.096	-107.8
Cohort 1914 to 1918	1,196.8	38.47	0.024	31.1
Cohort 1919 to 1923	1,302.4	32.85	0.026	39.6
Cohort 1924 to 1928	1,358.4	27.07	0.025	50.2
Cohort 1929 to 1933	139.6	22.20	0.003	6.3
Cohort 1934 to 1938	-995.3	12.32	-0.029	-80.8
Cohort 1939 to 1943	Omitted			
Period 1973	Omitted			
Period 1978	1,689.6	12.28	0.050	137.6
Period 1983	4,167.5	18.87	0.092	220.8
Period 1988	5,088.8	24.21	0.110	210.2
Period 1993	12,621.3	19.52	0.271	646.6
Gender	-1,300.3	13.92	-0.030	-93.4
Marital status	-373.7	7.12	-0.014	-52.5
type of household	55.4	1.61	0.012	34.4
Number of members	1,029.6	5.63	0.069	183.1
Self-employed person	-6,906.4	23.31	-0.087	-296.3
Farmer	-4,654.9	36.06	-0.032	-129.1
Civil servant	2,713.0	24.23	0.032	112.0
White collar worker	695.7	17.01	0.014	40.9
Blue collar worker	-1,193.4	16.04	-0.026	-74.4
Other	Omitted			
Adjusted R²	0.621			
Value of the F-statistic	541,434.8			

Another aspect is also of interest: the expenditures of civil servants and of white collar workers are positive – and the coefficient for the civil servants is by far the largest –, whereas all other coefficients for the dummys of the employment status variables are negative. Therefore, the saving rate of the civil servants is easily the lowest and, in the average, the household of the blue collar workers, of the farmers, and of the self-employed persons with the same amount of income, spend less for consumption[27].

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[27]   These results fit well with hypotheses, in which the dependency of the savings rate of households

Age, period, and cohort-effects are existing as well: the estimated coefficient of the variable age is negative and significant. This indicates decreasing expenditures with increasing age. The influence of the period is always significant and the higher, the less far the period is in the past. For the cohorts, the estimation indicates an increase of the expenditures starting from the cohort 1929 to 1933 up to the cohort 1919 to 1923. There is only a decline from the second oldest to the oldest cohort. This result is in contrast e.g. to the conclusion of micro-economic models of consumer behaviour, because it is often stated, that with increasing age the saving rate is decreasing. The result for the cohort 1934 to 1938 seems also a little bit special because the estimated coefficient does not fit in the overall structure.

Due to the values of the t-statistic, the estimation seems to be very good. The value of the F-statistic is also significant. All results are indications for an appropriate estimation of the relationship between income and expenditures with the chosen model. But, although in empirical research a value of the coefficient of determination $R^2 = 0.621$ for the fit of an consumption equation is quite good, it indicates a misspecification[28].

To detect the type of disagreement between the data and the assumed model, an analysis of the residuals has to be done[29]. As we are not interested in estimating the model, which will fit the data best, we will not go this road of success in this paper. We only want to show, that a somewhat simple linear relationship, as it is stated in estimated equation, reflects not the correct connection between earnings and expenditures. For this purpose, the plot of the residuals versus the fitted values, as it is shown in figure 10, is sufficient.

The plot in figure 10 indicates, that the underlying assumptions of the estimation are violated. This plot is clearly indicative of some problems. It suggests for example that the residuals do not have a common variance and therefore the assumption of a common variance is not fulfilled: higher expenditure leads, on the average, to a higher difference between the predicted and the observed value. The residuals are heteroscedastic. But on the other hand, this is a hint, that the relationship between income and expenditures is diminishing with increasing income, as was stated as an hypothesis.

The results thus imply that there is no simple linear relationship between earnings and expenditures in the same year.
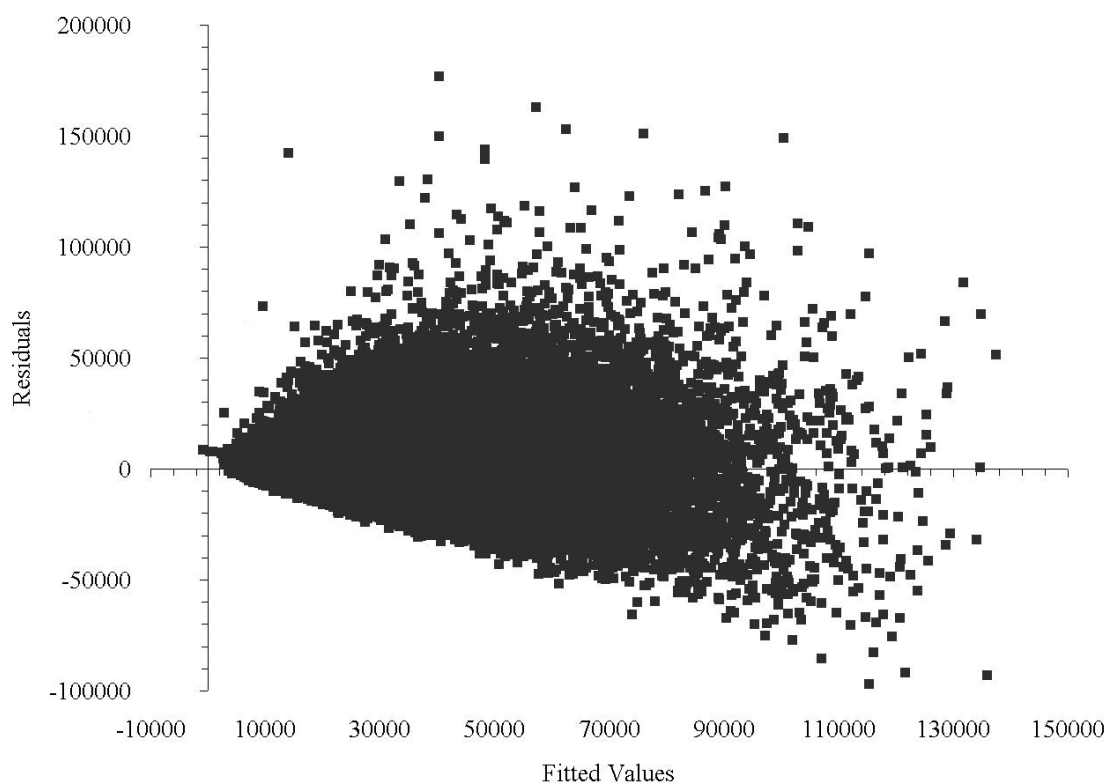
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and the income replacement rate especially of the old age security system is considered as negative; see for a more detailed discussion e.g. Fachinger (1998b: 33 pp.).

[28] See for example Intrilligator (1978: 126).

[29] For a short overview see for example Cook/Weisberg (1982).

Figure 11:   Residuals versus Fitted Values

5.   Concluding Comments

In our paper we presented a merely descriptive analysis of the relationship between earnings and expenditures. Our inductive approach yields a lot of heterogeneity with regard to the household decisions on expenditures. Therefore it seems to be that the relationship between present earnings and present expenditures is more or less coincidentially.

The results of our analysis point towards different directions of research. First of all, we only had information about the present income and expenditures. But it is not necessarily the case that the household decisions on expenditures are based on the current income. So as the life-cycle theory in economics for example postulates a relationship between present expenditures and the expected income in the long term future (the so called permanent income) does exist. In a cross-section the permanent income is covered up by transitory elements and no relationship between present income and present expenditures is given[30].

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[30]   The analysis of Hall/Mishkin (1982) is dealing with such aspects.

Another reason for the results could be, that in the context of constituting and maintaining their standard of living households simultaneous decide over earnings (labour supply) and expenditures (demand for goods). Taking into account the amount of earnings mobility[31], a risk avers person would therefore strive for maintaining its situation. Such behaviour would result in a loose relationship between earnings and expenditures in cross-section analysis.

Furthermore the results indicate that the search for explanatory factors for the expenditure structure and its development over time must take place beyond the monocausality of income and expenditures. If one postulates constant preferences over time, and income and time[32] as budget constraints, for a given set of income and time only the differences of preferences remain as explanatory factors. The explanation of differences in the expenditure structures and their development over time therefore are solely based on the preferences – and "de gustibus non est disputandum": you cannot argue about taste. The differences in individual preferences have therefore to be explained.

But the explanation of the differences in expenditure structures and patterns over time could only be the core of the analysis of the social embeddedness of consumption as Figure 12 shows.

With regard to the analysis of the differences in expenditure structures and patterns over time, and taken into account the theoretical aspects, mentioned in chapter 2 one has in our opinion to distinguish between four aspects (see Figure 12):
1. the principle availability of resources,
2. the rationality of the individuals about how to deal with the availability,
3. the social arranged life philosophies,
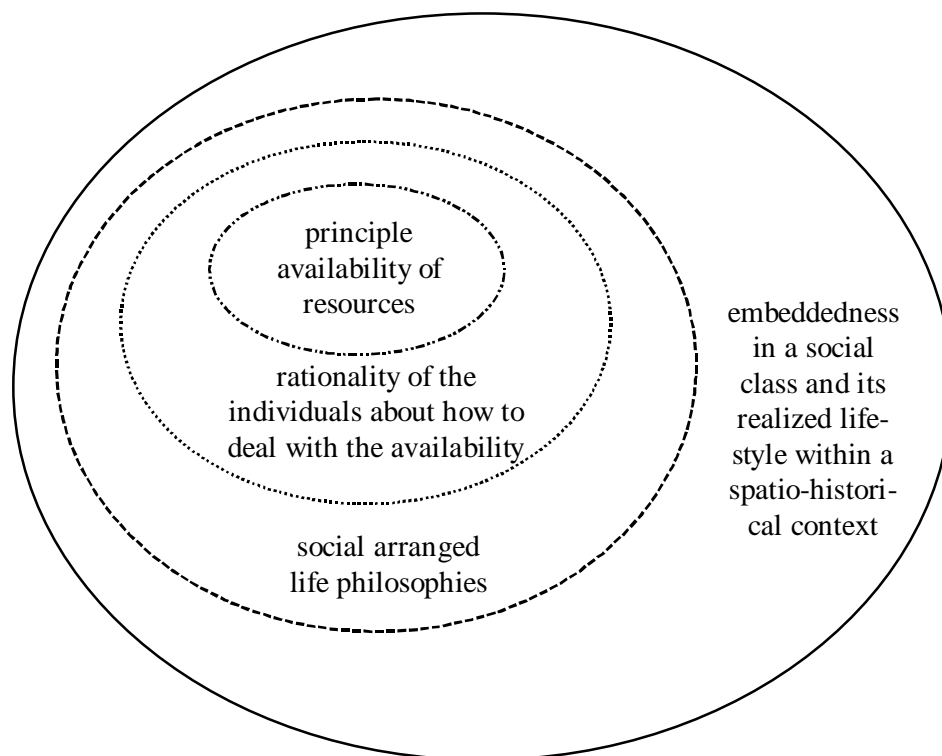4. the embeddedness in a social class and its realised life-style within a spatio-historical context.

Following our argumentation, socio-economic research is essential regarding household consumption. A crucial question is the congruence between material "possession" and the cultural stylisation, which is, by the way, an issue that has already been mentioned by a series of authors many decades ago (Wiswede 2000; Bögenhold 2000a). The more differentiated modern societies become, the greater the possible scope for expressively staging social life becomes. The better the material provisions is, the broader the margins will become, from which one or the other form can be selected. The availability of resources and their shortage, which determine their rational use, are socially embedded. The acting of individuals is also the result of social arranged criterions.

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[31]   See for example Atkinson et al. (1992) or Fachinger (1991).
[32]   For the relevance of time in consumption analysis see Garhammer (1994) or Vickery (1977).

Figure 12:   *The Four Aspects of the Analysis of the Differences in Expenditure Structures and Patterns over Time*

principle
availability of
resources

rationality of the
individuals about how to
deal with the availability

social arranged
life philosophies

embeddedness
in a social
class and its
realized life-
style within a
spatio-histori-
cal context

Furthermore, the relevance of longitudinal analysis becomes obvious because neither the behaviour of households nor their conditions are constant over time. Despite the question of the appropriate use of methodological instruments, we shall not forget that our research is principally conceptualised on a ground provided by classics as Thorstein Veblen, Georg Simmel, and Max Weber and succeeded by up-to-date authors like Pierre Bourdieu. Practicing a dialogue between different academic disciplines may be best appropriate to come to a more holistic view about consumption. The intersection between economics, sociology, and anthropology promises to be an interesting angel for further discussion.

6.   Appendix

Table 1:   Sample Size of the Income and Expenditure Surveys 1973 to 1993

Sample size	Survey				
	IES 1973	IES 1978	IES 1983	IES 1988	IES 1993[a]
Whole dataset	46,770	46,068	42,752	43,731	31,774
Single-person households	6,917	7,454	7,000	8,615	7,685
Two- person households	14,094	14,561	12,529	13,686	10,097

a) only for West-Germany.

Table 2:   Main Groups and Subgroups of Expenditures of Private Households

Main Groups	Subgroups
1 rent	– rent, – shares in the costs of pavement or street cleaning, refuse collection, sewage, – subletting, – rent value of own appartement;
2 energy (excl. motor fuels)	– electricity, gas, fuel oil, coal, coke, and other solid fuel;
3 food, beverages, tobacco products	– food such as all kinds of meat, sausages, potatoes, vegetables, fruit, bread, pastries, confectionery, marmelade, sugar, – beverages (1) soft drinks like fruit or vegetable juice, mineral water, fruit or herb tea, cocoa, coffee, tea, and (2) alcoholic drinks like spirits, beer, wine, champagne, – out of house meals and drinks, – tobacco products like cigarettes, cigars, chewing tobacco, snuff;
4 furniture, household appliances, and other commodities and services for household operation,	– furniture such as all kinds of tables, shelves, chairs, beds, mattresses, – floor covering, – electric household applicances such as heater, oven, refrigerator, freezer, washing-machine, – crockery, cutlery, tool, – consumer goods for homemaking, – wallpapers, building materials, – minor repairs at the expense of occupant, – dilapidations;

Main Groups and Subgroups of Expenditures of Private Households
(continuation of table 2)

5	commodities and services for transport and communications	all kinds of – automobile, motorcycle, bicycle, – durable and consumer goods for automobile and bicycle, – motor fuel, – repair costs, – rent of garage, – bus or rail journey, – communication like telephone or mail charges;
6	clothing and footwear	– outer clothing for men, women and children, – underwear, – sportswear, – headgear, – gloves, – cost of repairs of clothing, – cost of alteration to clothing, – cost of making of clothing;
7	commodities and services for education, entertainment, leisure	– television, radios, video set, record player, cd-player, – accessories for it, – cameras, – typewriters, computers, – musical instrument, – toys, – sports goods, – camping equipment, caravan, – watercraft, aircraft, – books, newspapers, magazins, – flowers, – any sort of object d'art, – stamp collection, – pets and feeding stuff;
8	commodities and services for health and personal care	– equitiy ration of costs of drug, – out-of-pocket medical expenses, – dressing, – durable goods for health care like glasses, electric heat pad, clinical thermometer, crutches, – any charges for medical services, – home care,

Main Groups and Subgroups of Expenditures of Private Households
(continuation of table 2)

8 commodities and services for health and personal care (continuation)	– consumer goods for personal care such as skin or body care products like soap, tooth-brush, toothpast, perfumes, vanishing creme, deodorant, toilet paper, – durable goods for personal care such as razor, hair drier, curler, sponge, scales, – expenditures for hairdresser;
9 commodities and services for personal effects, services of the lodging trade as well as other	– jewellery, watches, – pipes, pocket knife, umbrella, walking-stick, – any sort of bags, – articels for buriels like gravestones, coffin, funeral urns, – overnight stay in hotels, guesthouse, inn, – package holiday;

Source: Systematics of Income and Expenditures of Private Households; Federal Statistical Office of Germany.

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