



## Energy-related habits, interests, and perceptions of low-income households



With the support of:



# **Energy-related habits, interests, and perceptions of low-income households**

Project report within the scope of  
FinSH 'Financial and Support Instruments for Fuel Poverty in Social Housing'  
[www.finsh.eu](http://www.finsh.eu)

December 2007 – May 2010

Project no. EIE / 07 / 146 / SI2.466277

December 2009

Otto-von-Guericke-Universität Magdeburg  
Forschungsgruppe Umweltpsychologie  
Prof. Dr. Petra Schweizer-Ries  
als Juniorprofessorin für Umweltpsychologie  
Kaiser-Otto-Ring 6  
39106 Magdeburg

[www.fg-umwelt.de](http://www.fg-umwelt.de)

contact person:  
Dipl.-Psych. Irmela Benz  
Tel.: 0049 (0)391-67-11049  
Mail: [irmela.benz@fg-opsy.com](mailto:irmela.benz@fg-opsy.com)



The sole responsibility for the content of this publication etc. lies with the authors. It does not necessarily reflect the opinion of the European Communities. The European Commission is not responsible for any use that may be made of the information contained therein.

## Content

<b>CONTENT</b> .....	<b>3</b>
<b>INTRODUCTION</b> .....	<b>4</b>
<b>1. METHOD</b> .....	<b>4</b>
<b>2. RESULTS</b> .....	<b>5</b>
• SOCIO-DEMOGRAPHIC CHARACTERISTICS .....	5
• FINANCIAL RESTRICTIONS .....	8
• ENERGY POVERTY .....	9
• ENERGY USING BEHAVIOUR .....	11
• COSTS AND USES OF SAVING ENERGY .....	13
• ENERGY-RELATED KNOWLEDGE .....	14
• INFORMATION BEHAVIOUR AND ASSESSMENT OF SOURCES OF INFORMATION FOR SAVING ENERGY.....	18
<b>3. CONCLUSION</b> .....	<b>20</b>
<b>REFERENCES</b> .....	<b>22</b>

## Introduction

All over Europe energy prices are rising, putting a strain especially on citizens with low incomes. The phenomenon of “energy poverty” is becoming more and more important, e.g. a part of the population has to abstain from properly heating their apartments for economic reasons.

Inefficient habits of using energy in people's household may increase the energy bills and thus the risk of not being able to pay them. At the same time there is the danger that households, afraid of high energy bills, develop strategies that are dangerous for their own health as well as the building itself in the long run, e.g. heating the apartment only partly or not enough or even tapping others' power lines.

Campaigns and consultation offers raising awareness for the proper use of household energy help to significantly reduce the households' energy consumption (the average potential lying at up to 15%), enhance their living comfort and prevent health damages. Furthermore, there is the psychological effect of a support that helps people to help themselves, as for example boosting people's feeling of self-efficacy.

Up until now household that are socially disadvantaged are a target group hard to reach by those designing and conducting consultation offers. In the scope of the FinSH project the energy-related habits, interests and perceptions of low-income households were analysed in order to gain conclusions for designing offers aiming specifically at the target group.

## 1. Method

Between July and October 2009 people with low income from Magdeburg and Marseille were questioned with the help of a questionnaire, developed by the research group Environmental Psychology. In Germany the data were raised in the waiting area of a job centre (authorised by its management) as well as by addressing people in residential buildings. In France the survey took place in different social facilities with the support of social workers.

The evaluation considered the information of 185 persons (Germany: N=117, France: N=68) that fulfilled the criterion "low-income"<sup>1</sup> and that furthermore had filled out the questionnaire sufficiently.

The questionnaire comprised questions of the following areas:

- Socio-demographic characteristics
- Subjectively experienced financial restrictions and energy poverty
- Energy using behaviour and the importance of energy savings
- Costs and benefits of energy savings
- Energy-related knowledge
- Interest in energy savings information, use and assessment of information offers

The answers were raised mainly on a scale from 1 to 5 ("do not agree at all", "rather do not agree", "undecided", "rather agree", "agree completely"). The statements on the everyday handling of energy were based on a scale from 1 to 5 with possible answers being "never", "seldom", "now and then", "often" and "always".

---

<sup>1</sup> The available net income was measured within the scope of the survey using seven categories. If the upper limit of the marked category lay below 70% of the net equivalence income (in orientation towards the EU definition of the relative risk of poverty, which sets the mark at 60%) of a household of comparable size, the people were included in the evaluation. Moreover, all persons receiving welfare benefits were taken into account.

## 2. Results

### ■ ■ ■ Socio-demographic characteristics

#### Gender, age and familial situation

The whole sample included 76 men (41%) and 109 women (59%). In the random sample from France the women predominated with 67% more clearly than in the one from Magdeburg (55%). 17% of the interviewees in Marseille were of non-French, primarily North-African, origin. In Magdeburg 3% indicated to be of non-German origin.

The average age was 41 years and spanned from 18 to 94 years. There was no difference in the average age between the two samples, although the age distribution differed: In the Magdeburg sample 46% of the interviewees were under 30, whereas in France the proportion of middle-aged persons was higher (cf. Fig. 1).

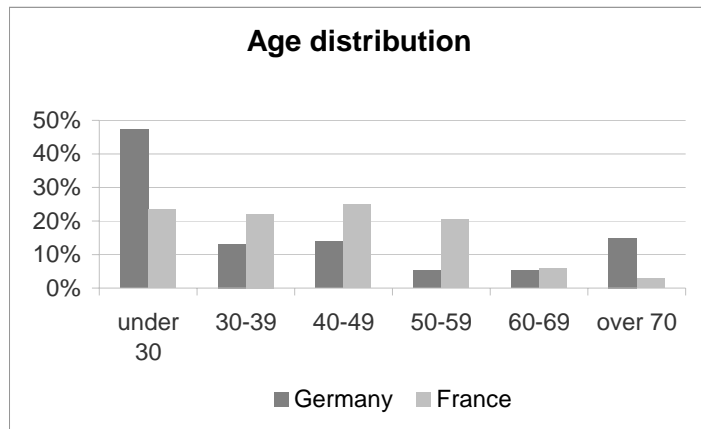


Figure 1: Age of the interviewees.

Most of the interviewees were single (43%). As to the rest, the proportion of married people predominated in the French random sample as opposed to the German one (cf. Fig. 2). This is not surprising considering the relatively high proportion of young people in the sample from Magdeburg.

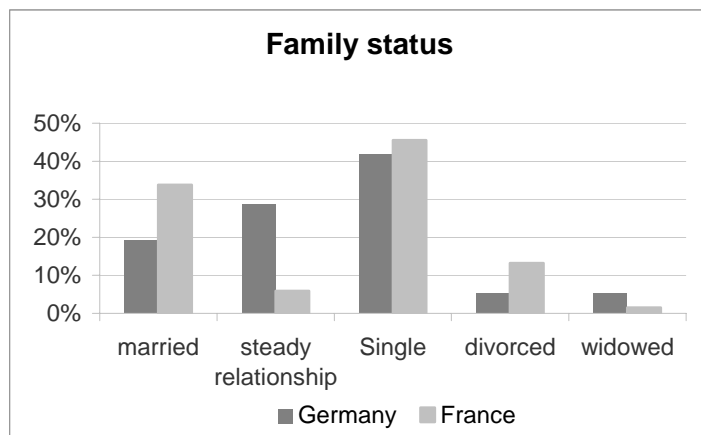


Figure 2: Familial status of the interviewees.

There were very clear differences between both groups concerning the interviewees' number of children. In the random sample from Marseille the average number was 1.8, whereas it was 1.1 in Magdeburg. Only 8% of the interviewees from Germany stated to have three or more children. On the contrary the proportion was 24% in France (cf. Fig. 3).

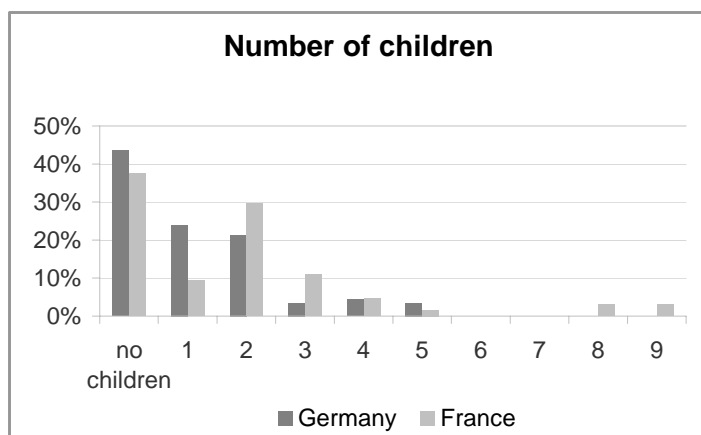


Figure 3: Number of the interviewees' children.

## Employment status and financial situation

At the time of the survey 56% of the interviewees were unemployed. In Germany the proportion was higher than in France with 62% in comparison to 44% (cf. Fig. 4). 17% of the unemployed in Germany were doing vocational training and 30% were retired. In France 20% of the people were doing vocational training and 11% were retired.

In total two thirds of the people stated that they received social welfare benefits, unemployment money or a pension.

The large part (54%) received social welfare benefits<sup>2</sup>, 21% received a pension, 10% housing benefits and 5% unemployment benefits (cf. Fig. 5).

A total of one fifth (19%) of the interviewees put the amount of their monthly net income at less than 500€. Most people's income lay at 500€ to under 900€ (28%) or 900€ to under 1300€ (26%).

Figure 6 compares the distribution of income for both random samples.

When considering the information on the households' net income it is important to note that for people receiving social benefits, the costs for lodging are taken over both in France and in Germany. Therefore the rent does not have to be paid from the net income<sup>3</sup>.

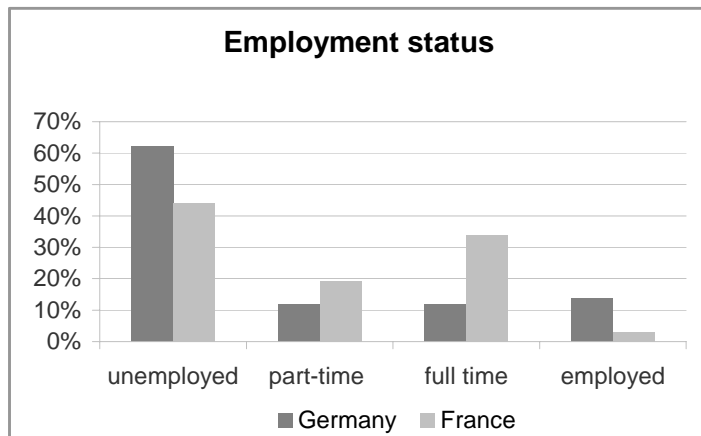


Figure 4: Employment status of the interviewees.

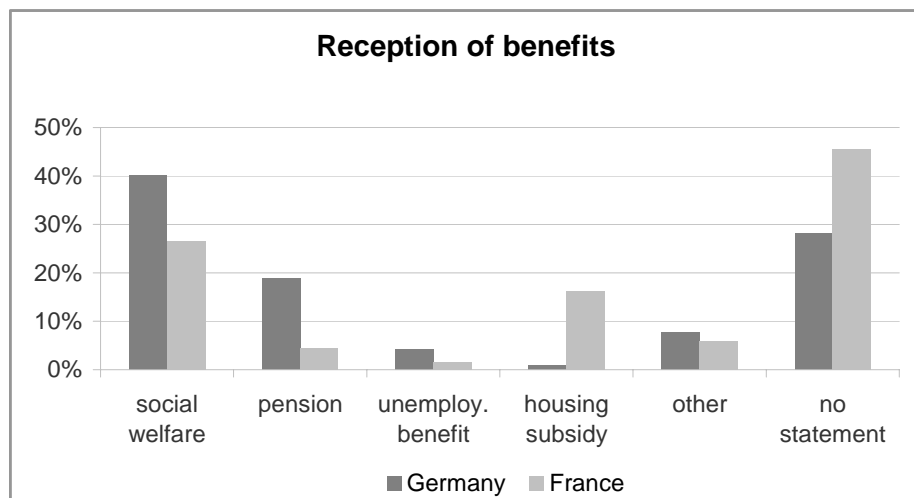


Figure 5: The reception of (welfare) benefits.

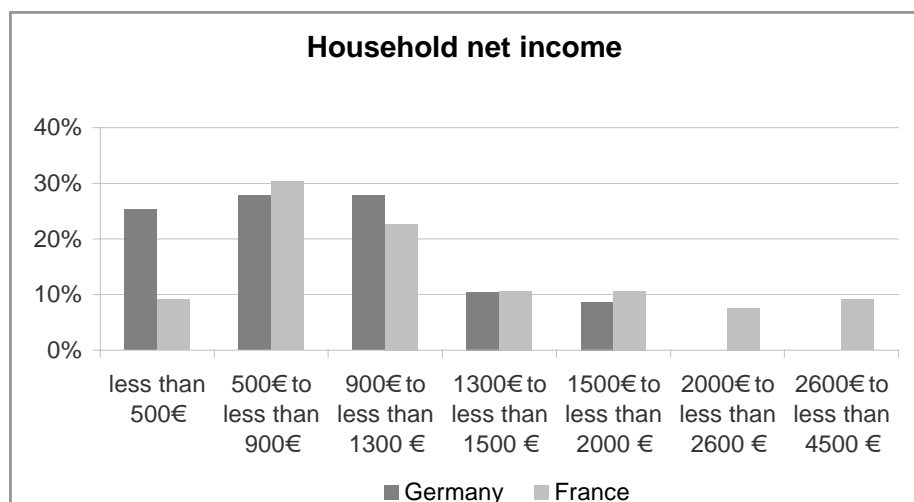


Figure 6: Available monthly household net income of the interviewees.

<sup>2</sup> in Germany: unemployment benefit II (ALG II)

<sup>3</sup> The standard rate for a one-person household lies under 500€ in both countries.

In Germany the costs for heating are also taken over. In the Magdeburg sample 66%, or rather 47%, or rather 25% of the lowest three income classes stated that they received benefits. In France the percentage amounted to 83% or rather 50% or rather 7%.

### Housing situation

In the Magdeburg random sample 95% lived in rented apartments. 25% lived in rent-controlled housing with a certificate of eligibility to public housing. In France the ownership structure was not surveyed.

The interviewees were asked to estimate the age and state of the building they inhabited. A total of 30% estimated that the building was built before 1950, 47% that the year of construction lay between 1950 and 1990. Approximately one fifth of the interviewees could not estimate the building's age or provided no information on this matter. The proportions were nearly identical in both random samples. In the German sample the information corresponds to those of representative surveys of the Federal Office of Statistics.

In the Magdeburg random sample 78% of those who estimated the construction year up until 1990 stated that the building was not or partly refurbished, whereas in the random sample from Marseille it was 63%. 21% of the interviewees from Germany and 30% of the interviewees from France judged the state of the building as refurbished.

The average household size of the interviewees spanned from one to six people in both groups and was clearly bigger in the random sample from Marseille than in the one from Magdeburg (2.7 versus 1.9 people/household)<sup>4</sup>. The average living space per household member amounted to 35m<sup>2</sup> in Germany<sup>5</sup> and 32m<sup>2</sup> in France.

### Equipment

According to representative polls<sup>6</sup> the refrigerator has become a standard part of private households' basic equipment. Accordingly 99% of the interviewees surveyed in the project stated to have at least one refrigerator in the household. A washing machine was available in 89% of the German households and in 86% of the French households. Dishwashers (27%) and tumble driers (15%) were much less common. The proportion was nearly equal in both random samples and, compared to the degree of equipment ownership of households from the newly-formed German states, clearly below average (dishwasher: 55%, tumble driers: 22%)<sup>7</sup>. The age of the equipment could not be evaluated because of the high number of missing information.

Nearly all households (96%) had at least one television set. 21% of the interviewees in Germany and 30% of those in France even indicated to own more than one television set. Moreover, 20% of the French and 24% of the Germans had more than one computer in the household, and 65% of the people in Germany and 69% of the people in France owned at least one computer and/or laptop<sup>8</sup>. 26% of the German and 35% of the French random sample owned at least one game pad. However, it is important to note, both with the game console as well as the computer, that the relatively high lack of missing information<sup>9</sup> might distort the results. It cannot be excluded that some people gave no information at all instead of marking the category "0".

<sup>4</sup> For comparison: average size of a household in Germany: 2.1 people/household (Federal Office of Statistics, 2006), in France: 2.3 people/household (INSEE, 2008)

<sup>5</sup> For comparison: In Germany the average living space of people from the newly-formed German states was 39m<sup>2</sup> (Federal Office of Statistics, 2006), in France it was 40m<sup>2</sup> (over all) respectively 30m<sup>2</sup> in social housing (INSEE, 2005)

<sup>6</sup> Federal Office of Statistics (2009)

<sup>7</sup> Federal Office of Statistics (2009)

<sup>8</sup> Germany's national average from August 1, 2008: 75%, however the proportion highly depends on the income level. France's national average from 2005: 49% (Federal Office of Statistics, 2009)

<sup>9</sup> This was 10% concerning the computers and 15% concerning the game consoles in Germany. In France it was 4% and 9% respectively.

Both random samples differ relatively strongly concerning the possession of other, smaller electronic household appliances. Thus the microwave was to be found in far more of the surveyed households from France, while the people of the Magdeburg random sample were equipped more often with a vacuum cleaner and a coffeemaker. Figure 7 summarises the results concerning the households' equipment.

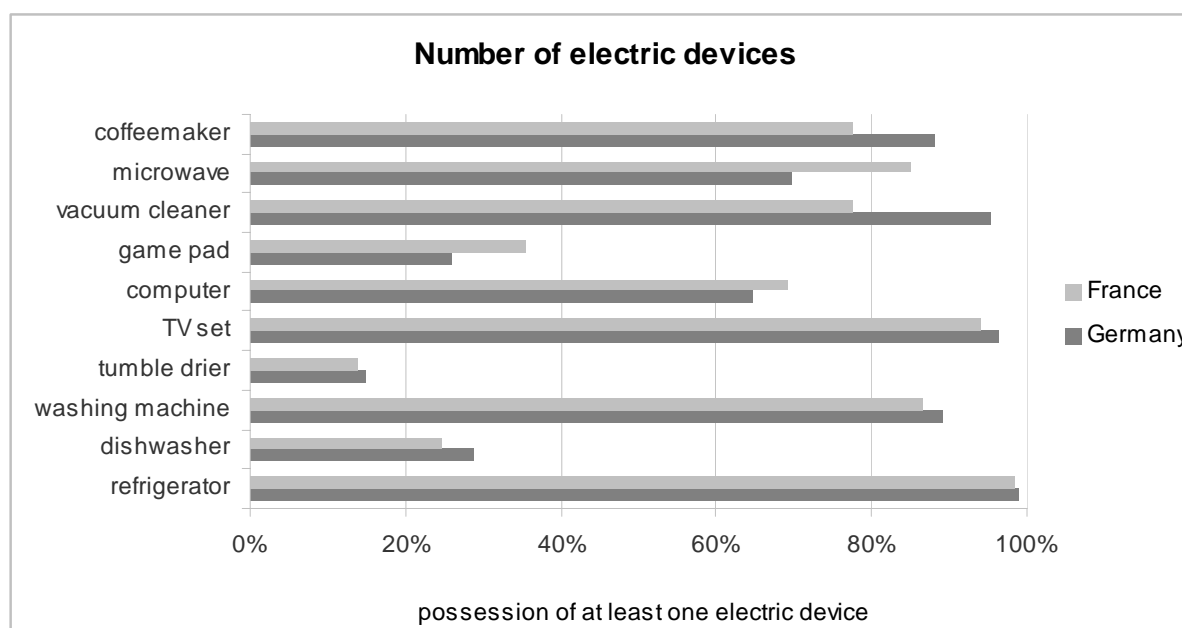


Figure 7: The households' equipment with electric devices.

The personal value of "good" equipment (concerning extent and quality) with electronic devices was rather slightly marked in both random samples. The large part (52%) of the interviewees did not agree at all or rather not to the statement that it was important to them to be equipped with state of the art electronic devices (e.g. television, MP3 player, mobile phone, kitchen utensils). 58% found it comprehensible when others were content with their devices' minimum standard.

## Financial restrictions

### Subjectively perceived constraints in different areas of live

The income of a person does not necessarily reveal whether somebody feels he cannot afford what he or she personally feels is "adequate". Therefore, the survey posed the question of how the people felt they were provided in different areas of life<sup>10</sup>.

The results show (cf. Fig. 8) that the interviewees of both random samples feel relatively well provided concerning the supply of food (e.g. eating and drinking both at home and out) as well as health care (e.g. health insurance, medical services, drugs) and energy (e.g. payment of bills for heating, the use of electronic devices and warm water). If one looks at the mean values, the basic needs concerning communication (e.g. via telephone, email, text messaging, mail), ones own mobility (e.g. usage or purchasing of car, public transport, bike), hygiene articles and cosmetics (e.g. purchasing of toiletries, perfume, cosmetics) and the living area (e.g. extent, location, quality, interior of ones apartment) also seem to be satisfied for the bigger part of the interviewees. Stronger limitations are generally perceived concerning leisure activities (e.g. sports, movies, museums, DVD) and the organization of holidays (e.g. different trips of varying length both inland and abroad) as well as information and continuing education (e.g. newspaper/magazines, language courses, lectures).

<sup>10</sup> In the instruction it was emphasized that it was a personal evaluation of what people consider important.

All in all the random sample from Marseille stated more clearly that they can not afford what they personally feel is necessary in different areas of life than the random sample from Magdeburg, with a total average of 2.8 (SD=0,781) in comparison to 3.4 (SD=0,831)<sup>11</sup>. Furthermore, the pattern of occurrence concerning the areas of life differs. Different factors may have played a role here. On the one hand, there is the varying evaluation of what is important in one's own everyday life. Accordingly, there may be a difference in what people consider necessary and therefore lay claims to in the respective area of life. The decision about for what financial resources, which then may be lacking somewhere else, are spent for can differ, too. On the other hand it cannot be excluded that the relation of the costs varies in the different areas of life between Magdeburg and Marseille.

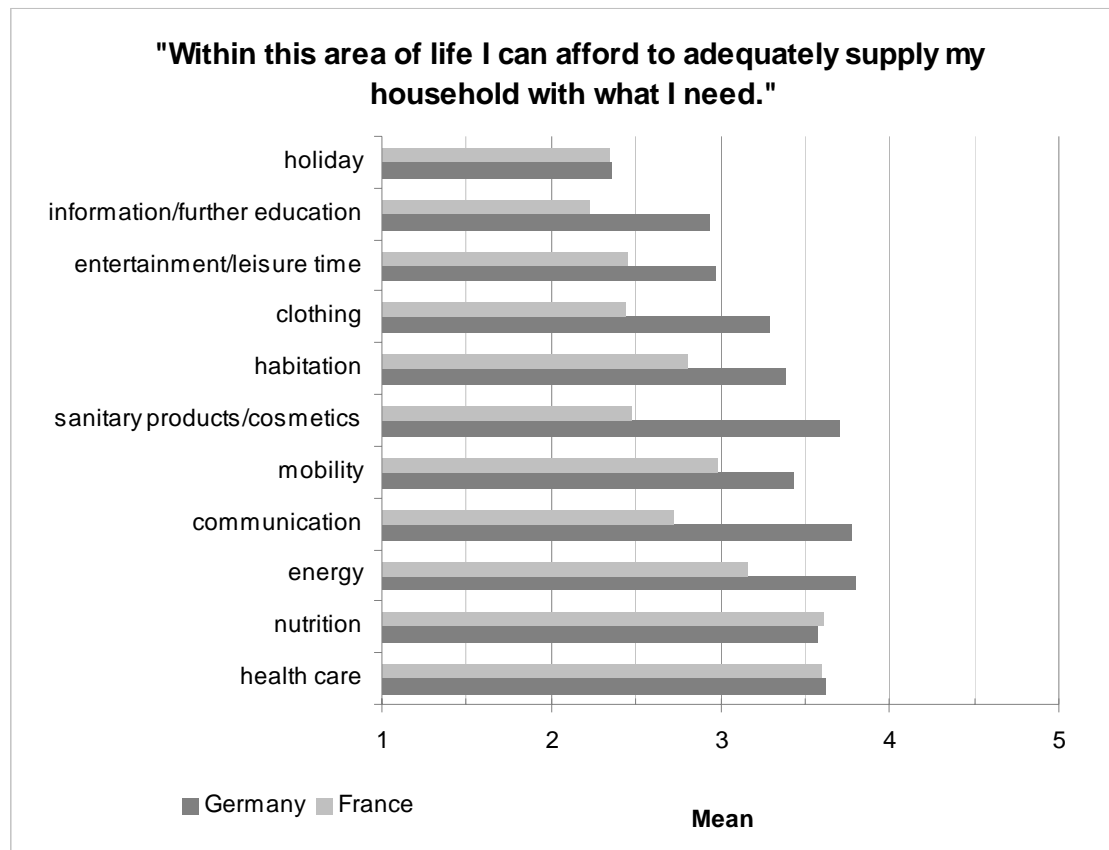


Figure 8: The interviewees' perception to what extent they can afford what they personally feel is necessary in different areas of life.

### ■ ■ ■ Energy poverty

As described above, supplying one's own household with energy for heating, the processing of warm water and the use of electronic devices was perceived by the interviewees as altogether rather acceptable. Nevertheless, the following results illustrate that the subject of energy poverty does play a role in people's everyday life. Thus at least 16% of the German random sample and one third (34%) of the French sample fully or rather agreed with the statement that they were not able to supply themselves adequately with household energy. Furthermore, within the scope of the investigation even more specific questions were asked, whether they were affected personally, whether their circle of friends and acquaintances were burdened as well as about anxiety about the future.

Overall 28% of the interviewees completely agreed or rather agreed that they themselves had difficulties with paying their energy bills. The majority of the German sample negated this as well as most of the interviewees did not report problems with paying energy bills amongst

<sup>11</sup>  $t(182) = 4.327, p < .001$

their friends and acquaintances. In the French random sample the proportion of people who completely agreed or rather agreed with the mentioned statements was clearly higher in each case (cf. Fig. 9 and 10).

In both groups people were worried considerably about not being able to supply themselves adequately with energy in the future (cf. Fig.11). There was also the general feeling of being considerably burdened by high energy prices (cf. Fig. 12). The proportion of those who completely agreed or rather agreed to these statements lay over 50% in each case. When summarizing the answers to all items the groups do not differ. The total average lies at 3.1 (SD=0,959).

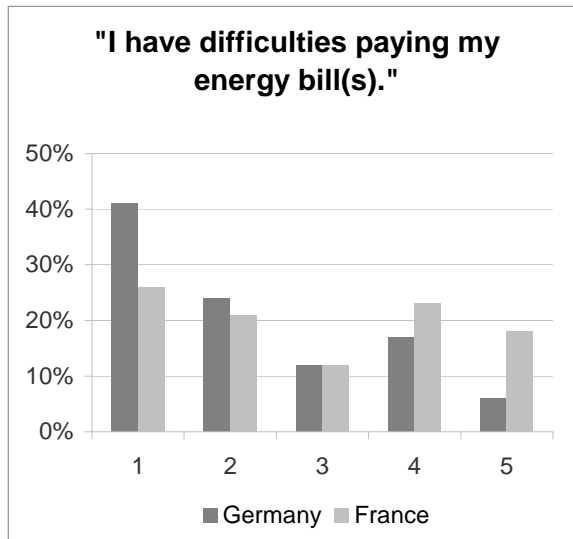


Figure 9: Energy poverty - being affected personally. Germany:  $M=2.2$   $SD=1.3$ , France:  $M=2.8$ ,  $SD=1.5$ .

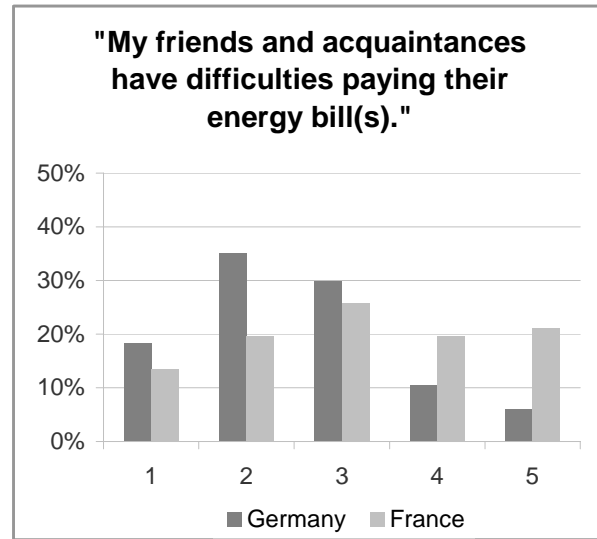


Figure 10: Energy poverty - burdens in people's personal milieu. Germany:  $M=2.5$   $SD=1.1$ , France:  $M=3.2$ ,  $SD=1.3$ .

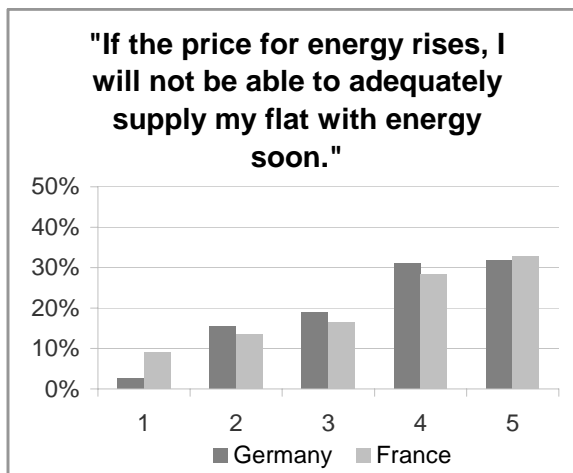


Figure 11: Energy poverty - worrying about being personally affected in the future. Germany:  $M=3.8$   $SD=1.3$ , France:  $M=3.6$ ,  $SD=1.3$ .

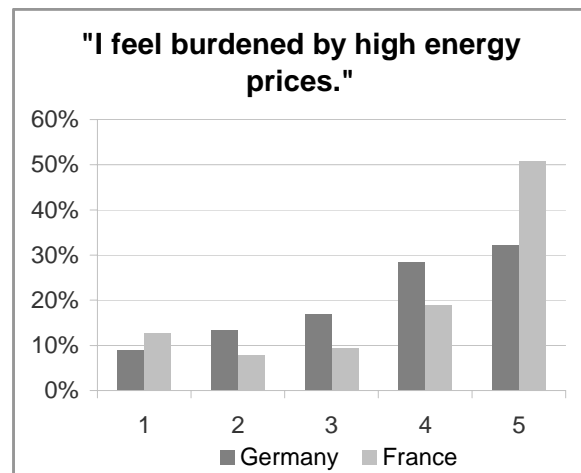


Figure 12: Energy poverty - subjectively perceived burdens. Germany:  $M=3.6$   $SD=1.3$ , France:  $M=3.7$ ,  $SD=1.5$ .

For the German sample it was evaluated if receiving ALG II (unemployment benefit) and the subsequent taking over of heating costs by a third party influences the extent of personally perceived energy poverty. The comparison has shown that people receiving ALG II do not differ from persons who do not concerning the overall mean<sup>12</sup>, but vary clearly concerning the statements "I have problems with paying my energy bill(s)" and "My friends have problems with paying their energy bill(s)"<sup>13</sup>. Recipients of ALG II agreed with both statements more

<sup>12</sup> the overall scale "energy poverty" contained 6 items

<sup>13</sup> Result of a multifactorial analysis of variances including all six items:  $F(6,100)=3.626$ ,  $p<.005$ . The comparison of the means of the items shows, that the overall effect traces back to the two named items

strongly. Concerning their own ability to pay energy bills the mean was 2.8 ( $SD=1.3$ ) in comparison to 1.8 ( $SD=1.1$ ), whereas in matters of the situation of friends and acquaintances it was 2.8 ( $SD=1.1$ ) compared to 2.3 ( $SD=1.0$ )

Furthermore, age and gender of the interviewees did not influence the responses.

Financial support offers, designed to protect against energy debts, as for example housing subsidy, the taking over of heating costs within the scope of ALG II or energy providers' social tariffs were rather valued negatively by the interviewees with a whole average of 2.6 ( $SD=1,04$ ) over three questions. In each case approximately 45% of the interviewees did not agree at all or rather not to the statements that the offers were sufficient, clear enough and well accessible. A comparatively big proportion of the interviewees was undecided concerning the quality of support offers.

The responsibility to keep private households' energy costs affordable was mostly ascribed to energy providers (76% from France and 64% from Germany completely or rather agreed) and politics (73% or 58% completely or rather agreed). Half of the interviewees (49%) still completely or rather agreed that the responsibility lay with the households themselves.

### ■ ■ ■ Energy using behaviour

More than 90% in both groups completely agreed with the statement that it was generally important to save energy nowadays. In each case approximately 70% stated that the subject also played an important role in their own everyday life. In the German random sample the proportion of those who stated that their friends were also mindful of being economical with energy was clearly lower (54%).

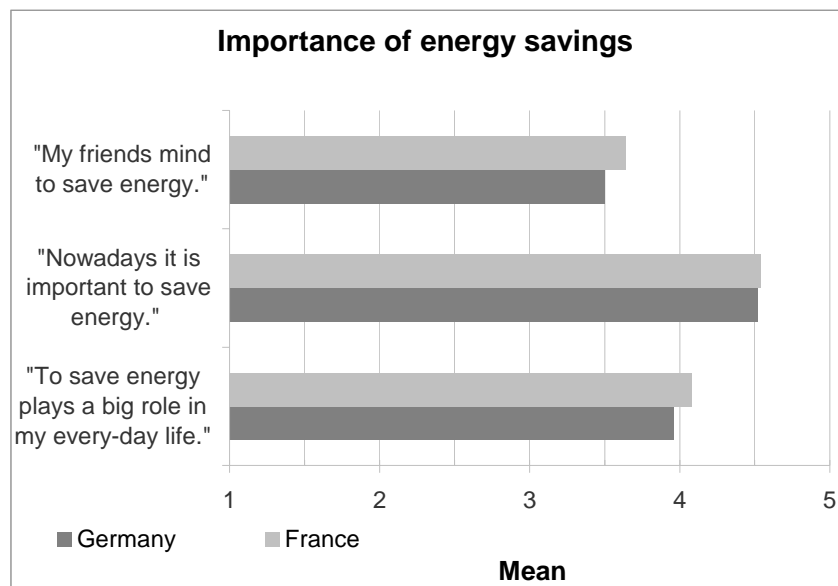


Figure 13: Importance of energy savings.

In France the data roughly corresponded to those of the value in people's own everyday life. Figure 13 shows the interviewees' average responses to the three mentioned items concerning the subjective importance of energy savings.

A large part of the people questioned described their own behaviour as "more economical than most others". In each case roughly 50% completely or rather agreed to the statement concerning their handling of heating energy, warm water as well as energy for the use of electronic devices/lighting.

In addition to this general self-assessment eleven behaviour patterns were described regarding the handling of household energy. The interviewees had to answer whether they "never", "seldom", "now and then", "often" or "always" acted like this (answer scale 1 to 5).

Here the interviewees' own behaviour was illustrated relatively positively in terms of power-saving, too. Some inefficient behaviour patterns were almost unanimously never or seldom shown according to the interviewees own information (e.g. putting warm dishes in the fridge to cool them down (a total of 91%) or covering heaters with pieces of furniture or curtains (a total of 93%). The answers concerning the other behaviour patterns were spread more across all answer categories.

It is relatively surprising to see – considering the clearly higher investment costs – the high proportion of those who stated to always or often consider a high efficiency class when buying new household appliances. In Germany this applied to 72%, in France to 55% of the interviewees. In comparison to that, the proportion of those always or often using energy-saving bulbs appears to be low with 41% (Germany) or 38% (France).

Despite those relatively positive answers the results point towards additional saving potentials. Thus, 35% of the Germans and 20% of the French stated that they never or only seldom switched off electronic devices completely to avoid a stand-by loss of energy. One quarter (24%) of the people surveyed in Magdeburg and nearly three quarters (71%) of the ones in Marseille declared that they always or often aired their apartments in winter by leaving the windows tilted.

Alltogether it may be noted that the individual behaviour patterns are only loosely connected<sup>14</sup>. This means that a certain economical behaviour in one area does not necessarily go hand in hand with economical habits in other areas. Figure 14 shows the evaluation's averages of both random samples concerning the individual behaviour patterns.

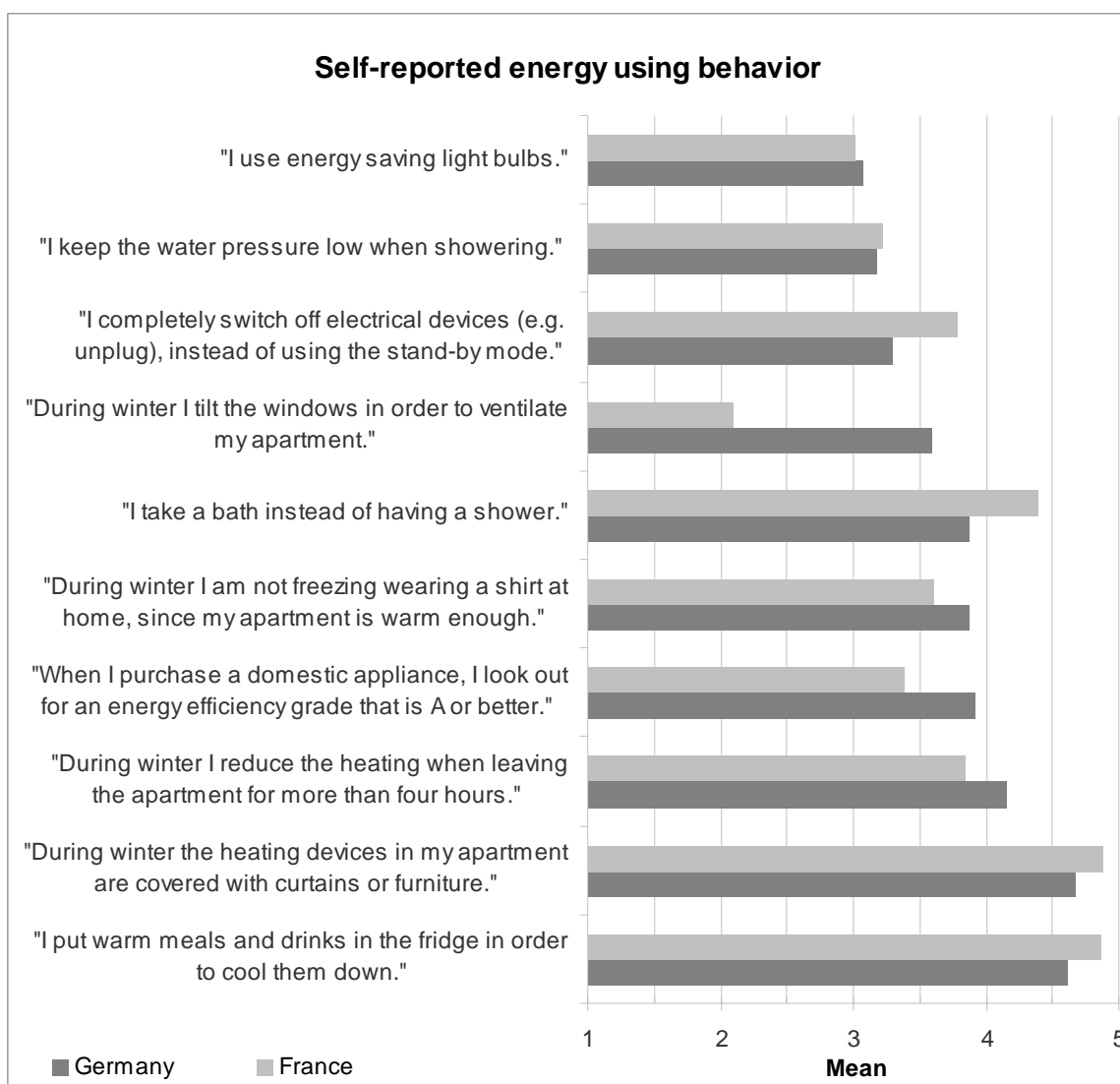


Figure 14: Energy using behaviour as reported by interviewees themselves. Negatively formulated items were recoded. Thus, throughout all items a higher value implies an energy behaviour that is more economical.

<sup>14</sup> Cronbachs  $\alpha < .60$ , even after eliminating individual items. So, the computation of an overall mean does not result in a reliable measure for a persons` economical usage of household energy.

Costs and uses of saving energy

The interviewees in both random samples relatively unanimously thought that *an average household* was able to save a lot of money by optimising its energy use behaviour. Altogether 80% completely or rather agreed to the statement concerning the use of electronic devices/lighting, 74% to the one concerning the use of hot water and 73% to the one concerning heating and airing behaviour. In comparison with that interviewees evaluated their *own* financial saving potentials - in line with evaluating their use

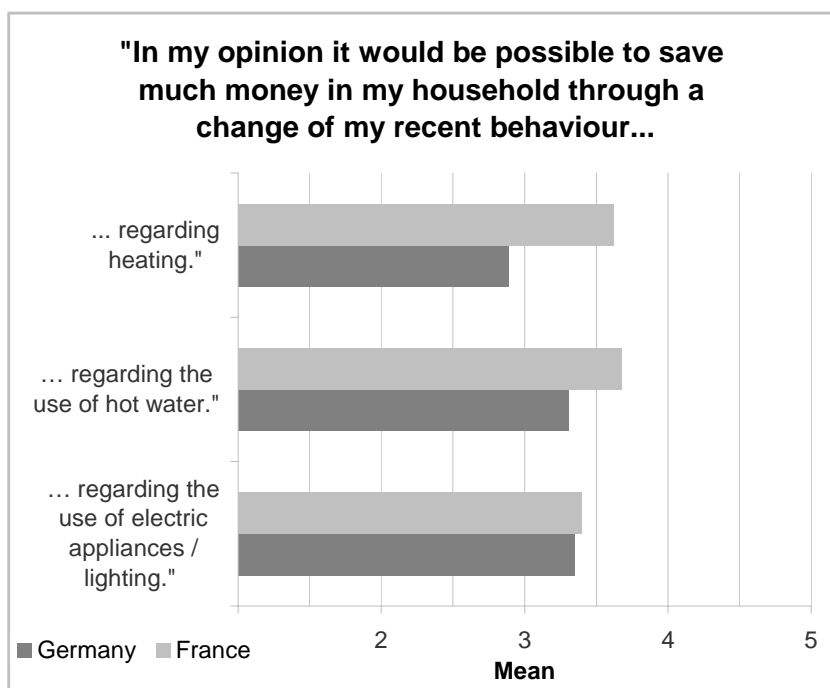


Figure 15: Evaluation of own financial savings potentials.

of energy as more economical than most others'- as slightly lower, however all in all perceived it as relatively high. It is striking that the interviewees from Germany estimated the saving potentials for heating as clearly lower than in other areas of energy use (cf. Fig. 15). The assumption that this might be attributed to a high proportion of people whose heating costs were taken over within the scope of ALG II could not be confirmed.

Interviewees stated that the subject of climate protection is of important significance for themselves: 64% of the Magdeburg sample and 83% of the one from Marseille agreed to the statement "Climate protection means a lot to me". 74% (Magdeburg) respectively 68% (Marseille) quoted to be annoyed with people that are unconcerned about climate protection.

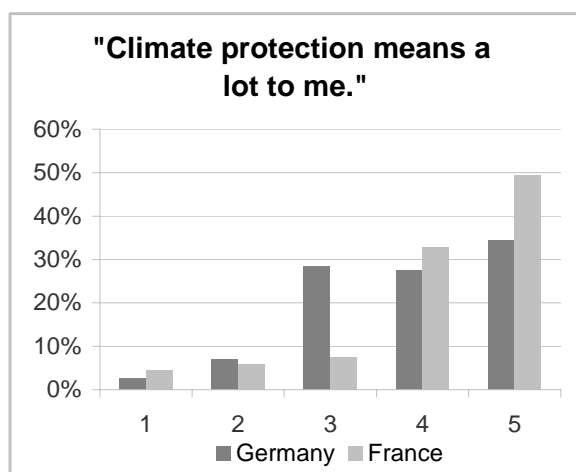


Figure 16: Personal importance of climate protection I.

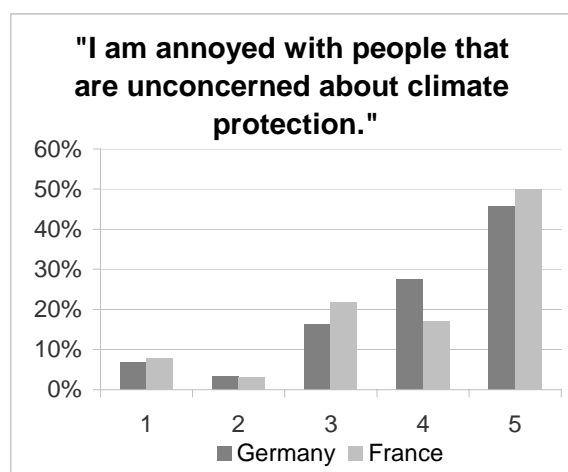


Figure 17: Personal importance of climate protection II.

Having to be economical is generally often connected with a reduction in comfort and thus in the quality of life. This expected loss may stand in the way of a change in one's own behaviour in spite of expected profits. 42% (France) respectively 59% (Germany) of the interviewees completely or rather agreed to experience saving measures regarding household energy as a strong limitation of their quality of life. Figure 18 shows the

interviewees' estimate of to what extent they experienced an economical behaviour in further contexts as a strong reduction of their quality of life<sup>15</sup>. All in all the experienced reduction is relatively high with a whole average of 3.3 (SD=0.832). It does not relate to the feeling described above to be able to afford an adequate supply in the corresponding areas of life. The people from France valued the need to be economical throughout all areas of life less strongly as a reduction of their quality of life (M=3.0, SD=0.955) than the people from Germany (M=3.5, SD=0.697).

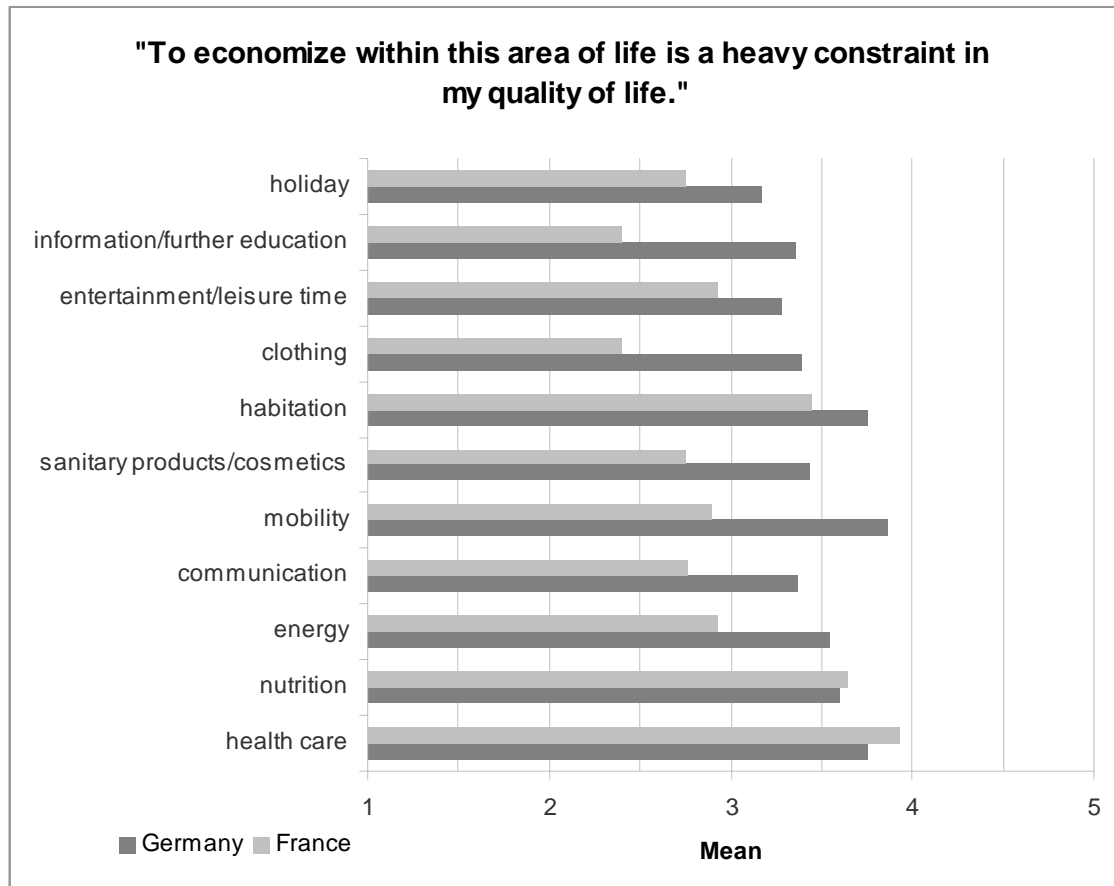


Figure 18: The interviewees' perception of constraints on their quality of life through necessary savings.

### Energy-related knowledge

The knowledge about one's own energy consumption and saving possibilities plays a central role for whether a person judges the economical use of energy as necessary in general and how successful the chosen strategies for energy saving are in the end.

A total of 63% of the people questioned (France: 59%, Germany: 65%) completely or rather agreed to the statement that they compared their energy calculations with those of the years before. The statement that they regularly controlled their own energy consumption, e.g. by reading the metre themselves, was affirmed by 35% (France: 41%, Germany: 32%). This information disclosed by the people themselves conveys the impression that the interviewees are relatively concerned with their energy consumption or their energy bills. However, this impression is qualified by the following results for the appraisal of the monthly costs.

<sup>15</sup> The instruction was „There are different areas in which one can save money, either by buying cheaper products, using products differently or abstaining from some things. For each of us these areas are of a different importance. Therefore, the reduction of the quality of life as personally experienced through such cost-cutting measures may be very different. In the following you will find a list with areas of life. Please mark to what extent you agree to the statement for each area: Having to economise in this area of life feels as a strong reduction of my quality of life."

Of those interviewees who had answered at least one question about the amount of their living and energy costs<sup>16</sup> (N=180) a total of 45% indicated that they were not able to estimate their monthly costs for heating energy (cf. Fig. 19). An additional 16% provided no information on this matter. The monthly costs for electricity were better known in comparison (cf. Fig. 20). Nevertheless here the proportion of those who gave no estimation was also high (24% "do not know", 7% gave no information). In each sample 12% did not know the amount of the total expenses for rent and warm additional costs or provided no information on the matter (cf. Fig. 21).

If one compares both random samples, it is striking that it was harder for the interviewees from Marseille to give an estimate of the total expenses and the electricity costs than for the interviewees from Magdeburg. In Magdeburg a part of the people had filled out the questionnaire in their own flat and was thus able to check the costs. Nevertheless, the analysis of the data shows that the place of the survey does not explain the difference between the random samples from Marseille and Magdeburg. Furthermore neither gender nor age, nor the reception of ALG II had an effect on whether a person had given an estimation about the amount of the single bills or not.

The question of how well the estimates agree with the actual costs cannot be answered conclusively because the actual costs were not raised. However, if one calculates the costs per square metre (respectively as regards electricity per household member) on the basis of the respective data, it may be assumed that a part of the estimations is not realistic. The data concerning the estimated monthly total costs spanned from 0.04 EUR/m<sup>2</sup> to 65.75 EUR/m<sup>2</sup>, concerning the estimated costs for heating from 0.25 EUR/m<sup>2</sup> to 11.43 EUR/m<sup>2</sup> and concerning the estimated electricity

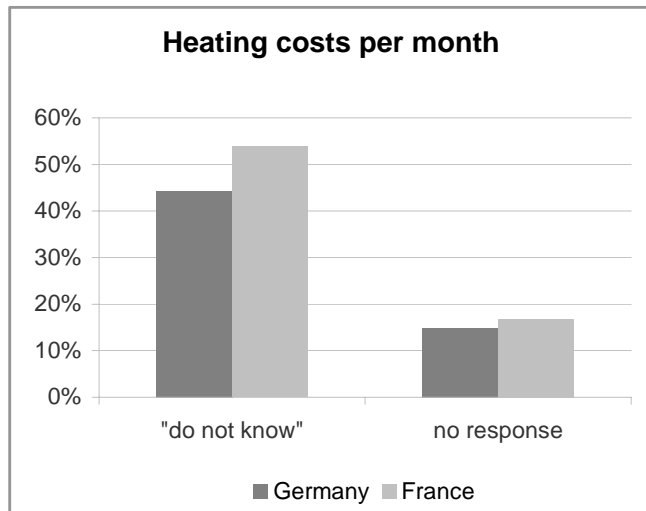


Figure 19: Proportion of missing specification concerning heating costs per month.

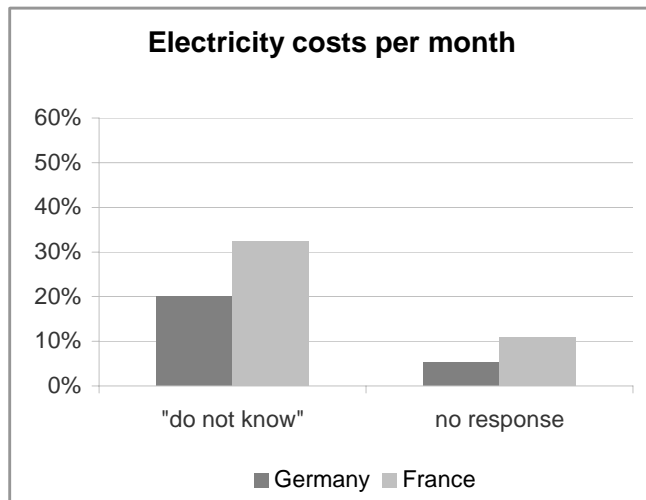


Figure 20: Proportion of missing specification concerning electricity costs per month.

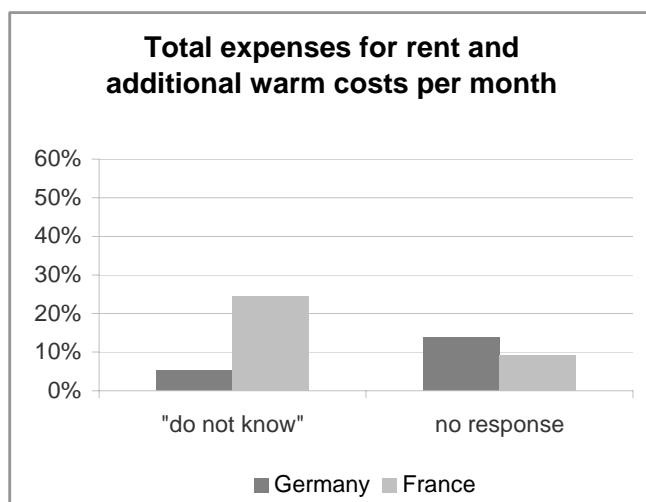


Figure 21: Proportion of missing specification concerning the total expenses for rent and additional warm costs per month.

<sup>16</sup> including the answer option "do not know"

costs from 5 EUR/person to 100 EUR/person<sup>17</sup>.

The survey's results concerning the general knowledge of energy consumption and savings measures also point towards significant knowledge gaps or uncertainties.

The Figures 22 to 27 show the answers of the interviewees, broken down to the two countries surveyed.

Only 31% rightly estimated that the biggest proportion of a private household's energy consumption is for heating. 35% guessed that the use of electronic devices/lighting consumed the most energy, 8% that it was hot water generation. 23% indicated they did not know the answer and 4% provided no information<sup>18</sup> (cf. Fig. 22).

The interviewees were very uncertain choosing the measure with the highest savings potential. Only one quarter of the interviewees rightly marked that the most energy on average per year can be saved by correctly heating and airing. However, 22% were of the opinion that using energy-saving bulbs or dispensing with a tumble drier achieved the strongest effects. 21% stated to not know the answer, 10% did not answer the question at all (cf. Fig. 23).

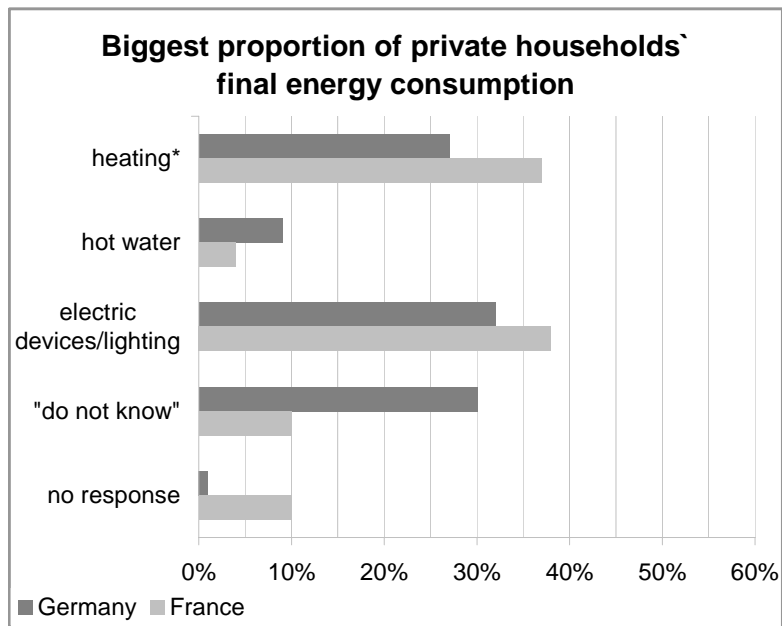


Figure 22: Interviewees estimation concerning the biggest proportion on a households` energy consumption.

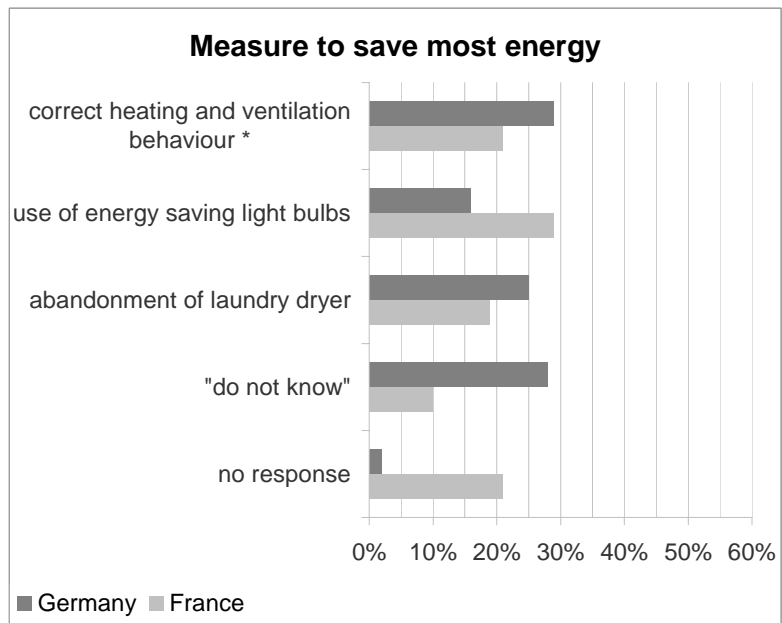


Figure 23: Interviewees estimation concerning savings potentials of different measures.

<sup>17</sup> In comparison: the average gross total rent (including additional expenses) amounts to ca. 7.30 EUR/m<sup>2</sup>/month in Germany (Federal Office of Statistics, 2006) and to ca. 8.90 EUR/m<sup>2</sup>/month in France (SESP, 2007). The average additional expenses amount to ca. 1.04 EUR/m<sup>2</sup>/month in Germany and ca. 1.50 EUR/m<sup>2</sup>/month in France.

<sup>18</sup> Only one person had not filled out the whole complex of questions and was excluded from analysis. Although all interviewees were able to answer all questions with "do not know", missing data may point towards to the fact that the people were not able to answer the respective questions.

A positive aspect is that the biggest part (58%) of the people questioned rightly believed the statement to be true that in order to save energy it was better to only lower the heating instead of turning it off completely when leaving the flat in winter. About one third did not agree to the statement, 8% did not know the answer, 2% provided no information (cf. Fig. 24).

Concerning the energy consumption of single electronic devices in the household 30% rightly estimated the fridge as the device using the most energy on average per year in a one-person household. 26% chose the electric stove, 13% the television and 9% the washing machine. 19% marked "do not know", 3% gave no answer (cf. Fig. 25).

The advantage of energy-saving bulbs in comparison to conventional bulbs with the same luminosity was underestimated by a large part: 40% were of the opinion that the savings would be around 50%, 14% guessed at 10%. One fifth indicated they did not know the answer, only one person marked nothing. One quarter rightly estimated the savings to be 80% (cf. Fig. 26).

Although 40% rightly did not agree with the statement that for energy savings reasons it was advisable to switch off the energy-saving bulbs only if they are not needed for a longer period, at least 35% thought this "myth" to be true. 22% indicated they did not know the answer, 3% provided no information.

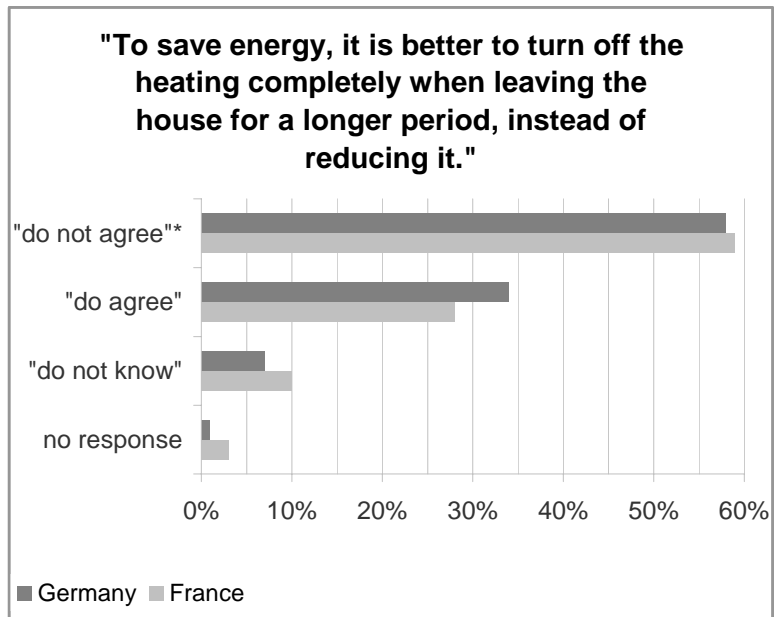


Figure 24: Interviewees estimation concerning correct heating.

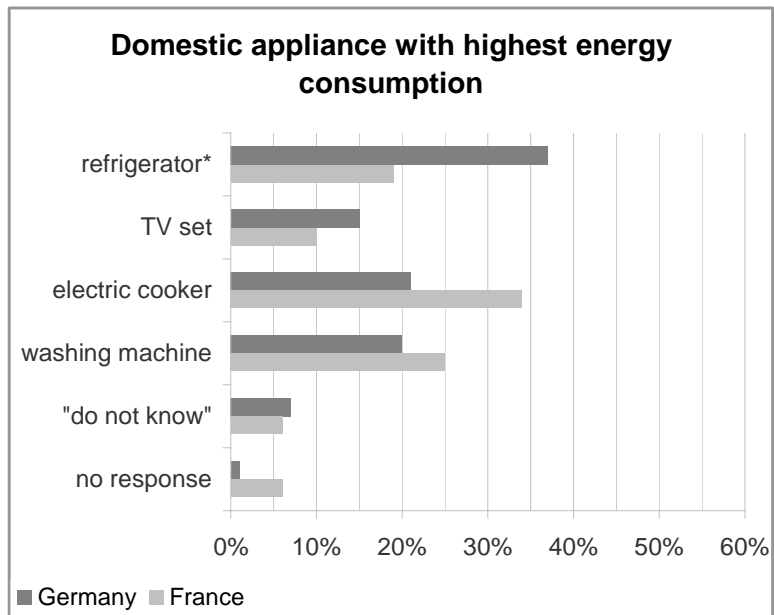


Figure 25: Interviewees estimation concerning the energy consumption of domestic appliances.

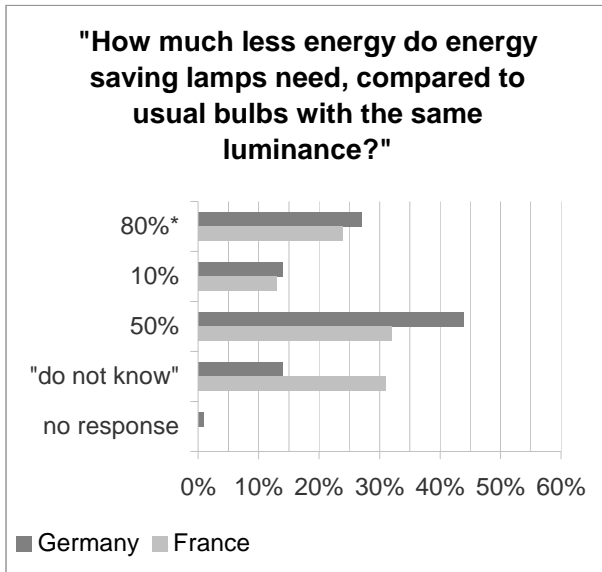


Figure 26: Interviewees estimation concerning savings potentials of energy saving lamps.

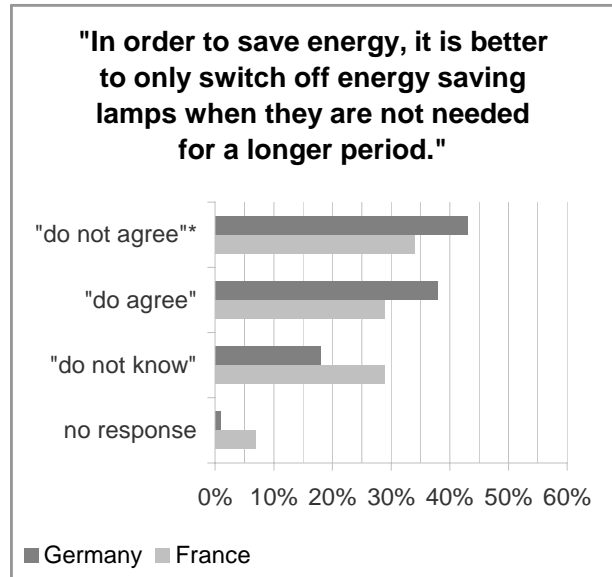


Figure 27: Interviewees estimation concerning correct lighting.

### Information behaviour and assessment of sources of information for saving energy

A large part of the interviewees stated that they specifically acquainted themselves with possibilities for saving energy: 43% of the people from Magdeburg and 65% from Marseille completely or rather agreed to the statement.

In each case a total of 74% of the interviewees completely or rather agreed to be interested in (further) information about saving energy regarding heating and the use of hot water. There was less interest in information about saving electricity (60%). This discrepancy particularly showed in the random sample from France (cf. the averages in Fig. 28).

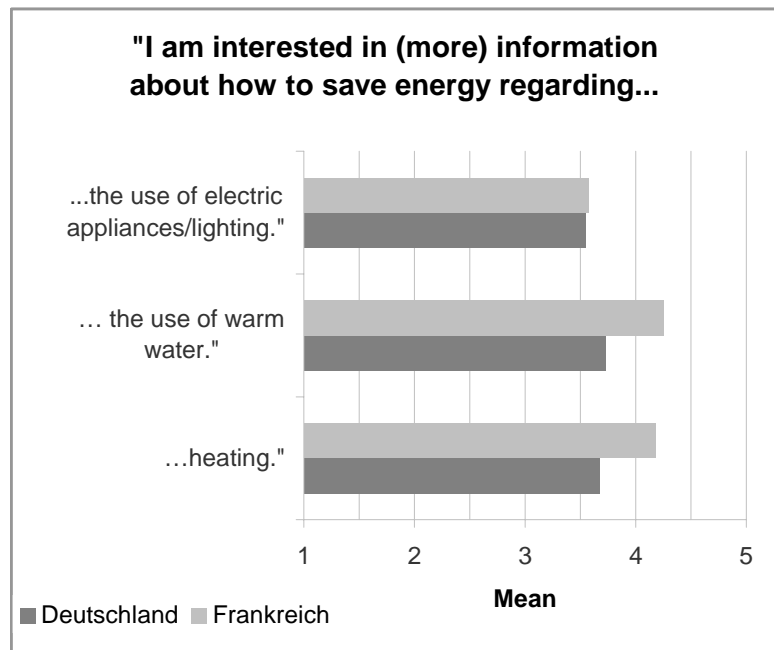


Figure 28: Interviewees interest in energy savings information.

The interest in information on saving energy (average mean of all three areas) stands in positive connection with the approval of the statement "Climate protection means a lot to me"<sup>19</sup>, with the extent of the perceived energy poverty<sup>20</sup> and the perceived financial savings, which a person expects after a change of his or her present behaviour<sup>21</sup>. The evaluation did not show a connection with the perceived reduction of ones quality of life based on saving measures.

<sup>19</sup> r=.490, p=.000 (one-sided)

<sup>20</sup> r=.333, p=.000 (one-sided)

<sup>21</sup> r=.333, p=.000 (one-sided)

The offer of information on energy savings was judged rather negatively in general by the interviewees from Marseille: 52% did not agree at all or rather not that the offers were adequate, 45% that they were clear and 43% that they were well accessible. In Germany the overall assessment was better (cf. Fig. 29).

It needs to be noted at this point that in both groups the proportion of those who were undecided about the assessment was relatively high (with regard to extent: 32%, with regard to accessibility: 35%, with regard to clarity: 41%).

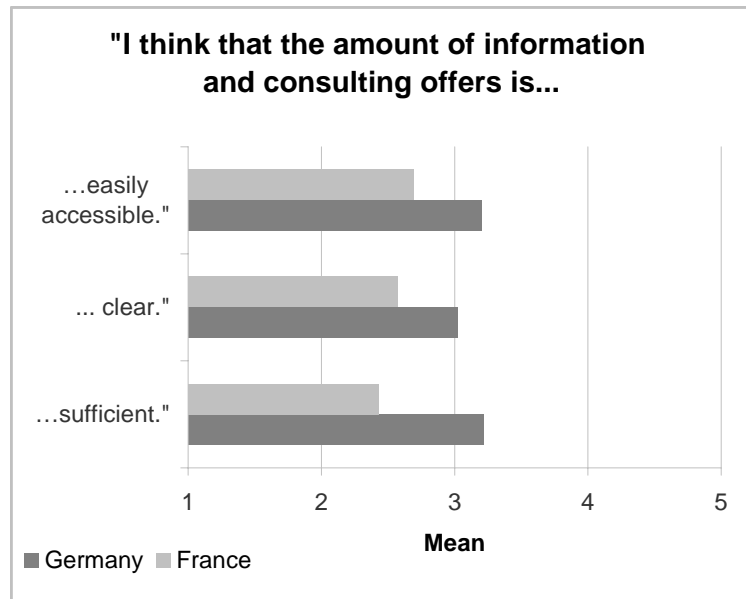


Figure 29: Interviewees evaluation of information and consulting offers.

The people questioned were asked to state from which sources of information in their opinion they had already received at least once tips on saving energy. It turned out in both random samples that television, the personal milieu (friends, acquaintances and relatives) as well as energy providers were the strongest sources of information present (cf. Fig. 30). As expected there was only a small proportion of those who claimed to have already attended a consultation on saving energy in their own flat, an advice centre or on the phone or to have already attended an information event. These people are rather women (67% in comparison to 58% with those who had given none of the specified sources).

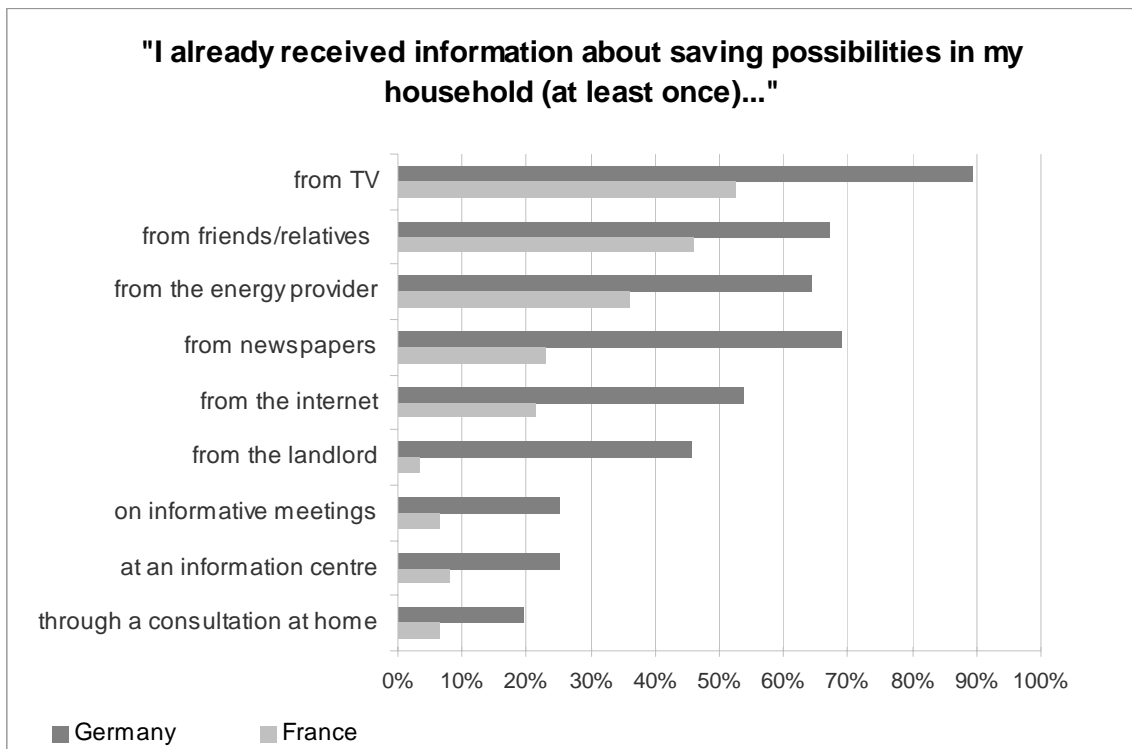


Figure 30: Sources of information used by the interviewees.

Those who had given the internet as a source for energy savings tips were clearly younger ( $M=34.4$ ,  $SD=13.4$ ) in comparison to the rest ( $M=44.2$ ,  $SD=19.6$ ) and the proportion of men was higher (48% in comparison to 35%).

Looking at the survey's results in Marseille it is striking that here the landlords or the house management are not among the present sources of information for energy savings tips.

In another step it was asked to what extent the energy savings tips gained from the respective sources of information were experienced as useful. Here it showed that the quality of the information from the sources quoted by particularly many people tended to also be evaluated better (cf. Fig. 31): As especially useful were perceived the tips by friends, acquaintances and relatives, from television as well as from print and online media and from energy providers.

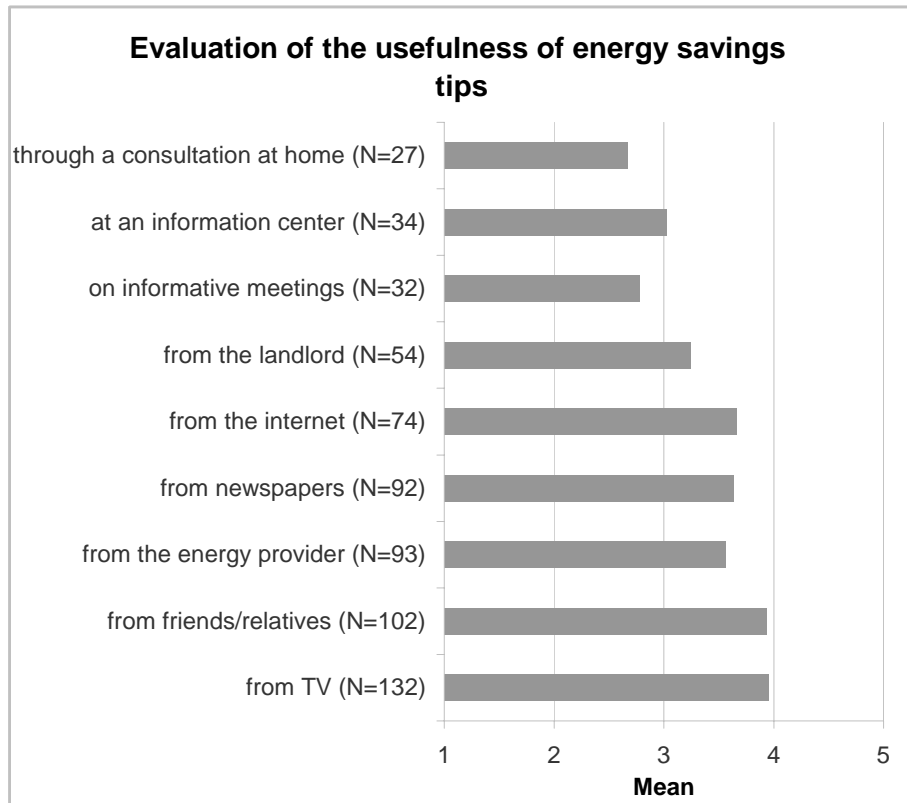


Figure 31: Interviewees evaluation of the usefulness of energy savings tips.

It is noteworthy that the personal consultation at home was evaluated relatively badly: 60% were not at all or rather not of the opinion that the tips were useful, only 4% were undecided here. Concerning the personal consultation in an advice centre, the proportion of those who evaluated the tips negatively was 44%. The proportion of the undecided was 12%.

### 3. Conclusion

Even if the majority of the interviewees have not had any difficulties with paying their energy bills up until now, the proportion of those who are already affected by it is high. Especially in the French random sample there are many people who feel they or people they know are already confronted with this obvious sign of energy poverty. These are people, on account of the different survey settings, who were in a more precarious social situation and perceived supply shortfalls more strongly than the people in the Magdeburg random sample. It may be assumed that also in Germany the proportion of people having difficulties with paying their bills is even higher among those using the support of social facilities.

At the same time the knowledge about one's own consumption and of possibilities for saving energy is alarmingly little or rather points toward the interviewees' being very insecure.

The interviewees describe their own behaviour very positively. Nevertheless the results, at least for a part of the interviewees, point towards obvious potential for optimisation concerning the daily use of energy for heating, the use of electronic devices and for warm water. As it cannot be excluded that the relatively positive depiction of people's own behaviour correlates with effects of social desirability, it may be assumed that the actual saving potentials are far bigger.

High energy prices are perceived as an obvious problem. The German random sample shows that even if heating costs are taken over within the scope of ALG II, it is not experienced as relieving the burden. A relatively high proportion of the interviewees does not only hold responsible politics, energy and housing providers but also private households for keeping energy bills affordable in the future, too. The interest in energy savings information is high according to people's own information. This is an essential condition for an open mindset towards energy savings campaigns.

However, the appraisal of one's own behaviour as more economical than „most others“, the perception of cost-cutting measures as a restriction of the quality of life, the negative assessment of personal consultation offers and the fact that the supply with household energy is the only area of life in which financial deficits are perceived refer to obstacles that have to be overcome when creating support offers.

The following recommendations can be derived from the survey's results:

- In order to sensitise households a large variety of communication channels should be used. Above all the use of multipliers from the same milieu and the creative use of television, print and online media (the latter especially for younger target groups) should be intensified. Particularly the French random sample shows potential to raise the presence of energy savings information in the interviewees' everyday life.
- Comparing one's own energy consumption with other households and exposing misjudgements around the subject of energy and saving measures can trigger an "aha-moment" which elucidates the personal need for action.
- Furthermore, realizing that there are knowledge deficits and that one's own consumption is maybe not below average after all as may encourage a selective search for information and a change of one's own behaviour within the scope of competitions. People whose consumption is indeed below average can be used as multipliers. This serves to prevent the so-called boomerang effect: knowing that one uses less energy than others can lead to people "allowing themselves" a higher energy consumption.
- The households' situation as a whole needs to be considered. Financial deficits are perceived in a variety of areas of life and the supply with household energy does not count among the areas in which the strongest restrictions are experienced. Fighting energy poverty should be embedded in general offers fighting poverty. At the same time, by pointing out how financial savings in the area of energy may be used for other areas, in which stronger restrictions are perceived, the incentive for energy savings measures may be raised.
- It is vital to demonstrate that an economical use of energy is not a reduction of the living comfort, but may – on the contrary – even enhance it.
- The high importance interviewees place on contributing towards climate protection, at least according to their own information, may easily be attributed to effects of social desirability. Nevertheless, the fact that a high orientation towards climate protection is perceived as socially desirable may also be evaluated and used positively. Acknowledging publicly any energy savings measures may boost people's own efforts.
- The relatively low use and above all the negative assessment of special consultation offers need be examined more closely. These might hint at the fact that so far anonymous sources of information have been preferred and that people's individual needs have not been considered enough in personal consultations up until now. The inclusion of the target groups when creating comprehensive consultation offers may help to increase the demand and the perceived use of the offers.

## References

INSEE : Institut national de la statistique et des études économiques (National Institute for Statistics and Economic Studies), 2005, 2008.

SESP: Service Economie Statistiques et Prospective (State office for Economy, Statistics and Forecasting), 2007.

Statistisches Bundesamt Deutschland (Federal Office of Statistics) (2006). *Bautätigkeit und Wohnungen. Mikrozensus-Zusatzerhebung 2006 - Bestand und Struktur der Wohneinheiten. (Building activity and apartments. Microcensus additional survey 2006 – Stock and structure of units.) Fachserie 5, Heft 1 – 2006.* Wiesbaden, Statistisches Bundesamt (Federal Office of Statistics).

Statistisches Bundesamt Deutschland (Federal Office of Statistics) (2009). *Zuhause in Deutschland – Ausstattung und Wohnsituation privater Haushalte. Ausgabe 2009. (At home in Germany – Equipment and Living Situation of Private Households.)* Wiesbaden: Statistisches Bundesamt (Federal Office of Statistics).