Conflicts between agriculture and society: the role of lobby groups in the animal welfare discussion and their impact on meat consumption

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Abstract

Conflicts between agriculture and society are growing in industrialized countries, especially with respect to animal husbandry. Against this background, the present study has the aims to analyze the level of agreement of German citizens with the positions of animal rights, consumer protection, and farmer lobby groups and how this agreement or disagreement affects citizens' future meat consumption.

To achieve these goals, reference is made to the Framing Theory and to the Theory of Planned Behavior. The original contribution of the approach presented here is the integration of both theories in one empirical study, which gives the opportunity to put the impact of public relations activities of different lobby groups into perspective. As can be shown based on a survey among 498 consumers, the intention to reduce meat consumption is only indirectly influenced by media frames generated by lobby groups. Behavioral control and subjective norm represent the most important direct influencing factors. However, the frames, namely the moral and the economic pressure frame, have a strong impact on attitude towards meat consumption.

Conflicts between agriculture and society: the role of lobby groups in the animal welfare discussion and their impact on meat consumption

Introduction

Conflicts between agriculture and society are growing in industrialized countries, especially with respect to animal husbandry. Pluhar (2010) in this context refers to the report of the Pew Commission on Industrial Farm Animal Production which recommended a "ten-year timeline for the termination of the most intensive production techniques". The broad interest in books like "Eating Animals" by Jonathan Safran Foer and films like "We feed the world" (Erwin Wagenhofer) are just some examples for the increased societal awareness of farming practices and their (moral) implications for meat consumption. A growing number of animal rights and consumer protection groups also engage in information campaigns or even drastic measures such as intrusions into large stables, filming the husbandry conditions and publishing videos on the internet. The campaigns often also include claims to diminish or even stop meat consumption to reduce animal suffering.

For the meat industry, the question arises if such activities have an impact on current and future meat consumption. To our best knowledge, this link has not been investigated so far. The present study therefore has the aims to analyze a) the level of agreement of German citizens with the different interest groups and b) how this agreement (or disagreement) affects citizens' future meat consumption on the basis of a recent consumer survey.

To achieve the above described goals of this study, reference is made to the Framing Theory and to the Theory of Planned Behavior (TPB). Both have been applied to the meat sector and meat consumption, respectively, before (Böhm et al. 2010, Kayser et al. 2010, Sparks et al. 1995, 1997; McCarthy et al. 2004, Berndsen and van der Pligt 2004, Bonne et al. 2007). The contribution of the approach presented here is the integration of both theories in one empirical study, which gives the opportunity to put the impact of public relations activities of different lobby groups into perspective.

First, the core arguments lobby groups of farmers on the one hand and animal and consumer rights groups on the other hand put forward concerning the discussion of animal husbandry, had to be identified. To this end, a content analysis of public statements (press releases, position papers, speeches published online, etc.) of these parties was conducted. Following the framing-theoretical procedure proposed by Scheufele (1999), specific patterns of arguments (frames) put by the different groups were identified. Such frames are defined by Drake and Donahue (1996: 288) as "communicative structures that can be monitored and shaped to influence integrative processes". Given the importance of frames for opinion building and belief formation (Dahinden 2006), their impact on meat consumption, and intention to change it, was assessed with a questionnaire. The Likert-type items measuring the frames were complemented by measures of the TPB-constructs, i.e., behavioral beliefs, subjective norm and perceived behavioral control, which were derived from the literature (namely Sparks et al. 1995). In July 2011, an online-survey among 498 German consumers was conducted to empirically test the two theories.

In the following, we briefly introduce the Framing Theory and the Theory of Planned Behavior, which represent the theoretical framework of the study. The current state of knowledge concerning factors influencing meat consumption and the perception of animal husbandry is outlined. Following a description of materials and methods, the results of the content analysis and the consumer survey are presented and discussed. Implications of our findings are resumed in the conclusions.

Theoretical framework

Framing theory

The identification of dominating arguments put forward by different lobby groups on the issue of animal welfare is embedded in the Framing Theory. The Framing Theory is labeled to be a "scattered conceptualization", since so far, no consistent definition exists (Entman 1993: 51). Nevertheless some core elements are found in each definition: framing is considered to be the strategic selection and deliberate highlighting of some aspects whereas neglecting others, of a perceived reality by a communicator. Whereby a certain "problem definition, causal interpretation, moral evaluation, and/or treatment recommendation for the item [is] described" (Entman 1993: 52). Within this process, the different communicators compete against each other in gaining public attention and support (Matthes and Kohring 2004:56). Drake and Donahue (1996: 288) define frames as "communicative structures that can be monitored and shaped to influence integrative processes", highlighting the importance of framing for opinion building and belief formation.

According to Scheufele (1999), a basic differentiation is made between media frames, referring to the selection and presentation of messages, and recipient frames which are „mentally stored clusters of ideas that guide individuals' processing of information" (Entman 1993: 53). This process is characterized by the comparison of the new information with already existing frames and the integration within a frame. Recipient Frames are established through a long process of learning and said to be very stable (Kroeber-Riel et al. 2009).

For the formation of such recipient frames, one central question is how far different media-frames affect the evaluations and attitudes of the individual (Scheufele 2004, Dahinden 2006: 60). To identify media frames, inductive and deductive approaches are distinguished (Dahinden 2006: 200; Matthes und Kohring 2004: 57). The inductive approach discovers frames by analyzing empirical data, for example press releases and other published articles using textologic- or content-analysis. The deductive approach uses generic frames rather than specific ones that are derived from the literature (Semetko and Valkenburg 2000, van Gorp 2005: 489). According to Matthes and Kohring (2004: 61), this reduces the possibility to detect new and not anticipated frames, which is considered to be a disadvantage. The high degree of generalizability and objectivity of this approach, on the other hand, is determined to be an advantage (ibid.).

A study by Böhm et al. (2010, see also Kayser et al. 2010) using a deductive approach analyzed the communication within web blogs posts and other social media sites with regard to agricultural and food related issues. With the help of a semantic software tool, that is able to detect certain words, their synonyms as well as semantic terms, they found that about 35% of the posts match with their predetermined frames "Naturalness" for "alternative" and "Productivity" for "conventional" production methods.

As another way to empirically detect recipient frames, Dahinden (2006) suggests to use a factor analysis over statements representing fragments of frames. Deimel et al. (2012) for example determined farmers' perception of animal welfare using a factor analysis. They developed a questionnaire comprising statements referring to the scientific views on animal welfare, namely the "natural living", the "biological functioning" the "affective states" approach. They found out that the frame dominating among the farmers is the "biological functioning" view on animal welfare.

Theory of Planned Behavior

According to the second aim of this study, the effect of consumers' attitudes and personal characteristics on meat consumption shall be assessed. Among the numerous theories analyzing the relationship between attitudes and behavior, the Theory of Planned Behavior

(TPB), conceived by Icek Ajzen and Martin Fishbein during the past thirty years, has probably reached the highest number of empirical examinations.

According to this theory, as can be seen from Figure 1, a certain behavior is determined by the intention of a person to carry out this behavior, which in turn depends on the core constructs of attitude towards the behavior, subjective norms, and perceived behavioral control. The latter construct refers to the degree to which a person thinks he or she can control whether or not to carry out a behavior, while subjective norms reflect the perception of relevant others whishing the person to perform or not to perform a certain behavior. The attitude towards the behavior finally represents the beliefs a person has as to the consequences of a behavior and how these consequences can be evaluated. In the background, thus mediated by the aforementioned constructs, individual, social and informational variables also play a role. This is also where the lobby groups – be it animal rights and consumer protection or farmers' groups – come into play: through different activities and information campaigns, they attempt to shape the public opinion. Following the Theory of Planned Behavior, however, one would assume that even if they successfully do so, the impact on actual behavior will be strongly mediated by the specific TPB-constructs mentioned above.
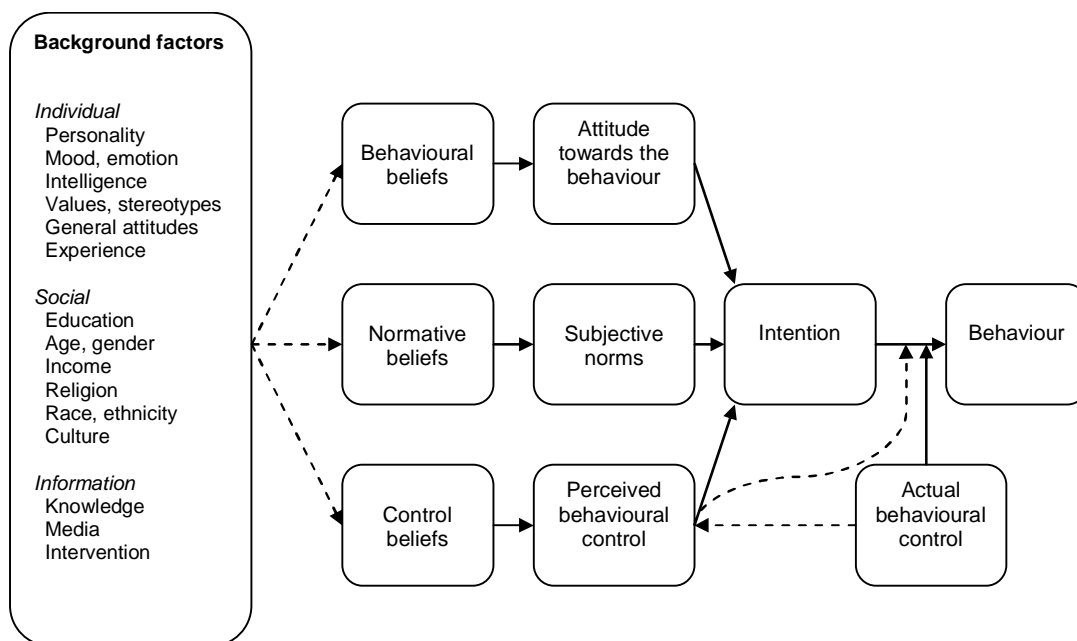

Figure 1. The theories of reasoned action and planned behaviour (Ajzen and Fishbein 2005: 194)

This theory has often been applied to food consumption (Conner and Sparks 1996) and also to the context of (reduced) meat consumption, as outlined in the following. Berndsen and van der Pligt (2004) employ an exhaustive TPB-model to explain meat consumption, including 24 behavioural beliefs grouped into hedonic, health, environmental, moral, and affective beliefs. Subjective norm and behavioural control are measured with reduced scales. A special interest of this study is the impact of attitudinal ambivalence on meat consumption. In a survey among 110 psychology students, they show that people with higher ambivalence on average have more negative attitudes towards meat consumption and their belief structure is different from those with low ambivalence with the exception of hedonic beliefs (taste & variety). Furthermore, according to the results, ambivalence mediates the effect of attitude on intentions to change meat consumption.

Studies which empirically test the theory only partially employ the full measurement of the constructs as described by Ajzen and Fishbein (2005). Reduced measurements are found in a

number of studies (Sparks et al. 1995, 1997; McCarthy et al., 2004). Sparks et al, (1997) furthermore show that in the context of changing consumption habits (of chips, in this case), perceived difficulty is a better predictor of intention than perceived control.

Material and Methods

Content analysis

To detect the argumentation structure and thereby derive the media frames on the issue of animal welfare employed by agricultural and agribusiness lobby groups on the one hand and the different animal rights and consumer protection groups on the other hand, a qualitative inductive approach was used (Matthes und Kohring 2004: 57et seq.).
This analysis was carried out from April until June 2011 and comprised documents published online, e.g. press releases, comments on the homepages of the organizations as well as the homepage itself. Altogether the websites of 36 organizations, 18 agricultural / agribusiness and 18 animal- and consumer protection groups, were included in this screening.
Within the analysis the choice, placement and structuring of certain key words was recorded until no more new arguments were found (Zschache et al. 2009: 11). According to a process of generalizing, integrating and selecting, categories were built which were steadily adjusted to the empirical data. The arguments within one category are completely congruent and clearly different to those of other categories (ibid.). By doing so the media frames set up by the organizations were identified.

Measures

To empirically test how the frames identified in the content analysis are received by the public, typical statements of the lobby groups of farmers, as well as the animal and consumer rights groups were directly adopted, reflecting all dimensions of the frames extracted in the previous content analysis. These were supplemented by statements used in an earlier survey (Deimel et al. 2010). Mainly, seven-point-Likert scales from 1 (fully disagree) to 7 (fully agree) were used.
Questions concerning current meat consumption and respective influencing factors were drawn from the literature (e.g., Sparks et al. 1997, Berndsen and van der Pligt 2004). The future meat consumption was measured by the statement: "I will reduce my meat consumption in the future" (7-point-scale from1 = absolutely unlikely to 7 = very likely). To take into account the Theory of Planned Behavior (TPB) of Ajzen and Fishbein (2005), we included a simplified version of the constructs of subjective norm and perceived control over reduced meat consumption, as applied also by Sparks et al. (1995: 245): Subjective norm was measured by the item "To what extent do you think that people who are relevant to you want you to reduce your meat consumption?", and perceived control was captured by the item "Reducing my meat consumption would be very easy – very difficult to me." All items were measured on 7-point scales. Furthermore, standard questions on socio-demographic characteristics such as age, gender, education, household size were included.
As a measure of attitude towards meat consumption, the following items were included: "Meat is an important part of human nutrition". Compared to Berndsen and van der Pligt (2004) we use a simpler measure of meat consumption, asking only for the estimated frequency of pork, beef, and poultry consumption on a 6-point, fully anchored scale from daily to never.

Statistical analyses

Besides uni- and bivariate descriptive analysis, a principal component analysis with Varimax rotation was conducted to confirm the different frames. To evaluate the agreement or disagreement of the subjects with the respective frames, indices were calculated for each

factor by calculating the average over the answers given to all statements belonging to the respective factor. Finally, multiple mediated regression analyses (Preacher and Hayes 2008) were carried out to determine the impact the frames as well as current levels of meat consumption, subjective norm, perceived behavioral control, and socio-demographic criteria have on the willingness to reduce meat consumption in the future.

Description of the database

The survey was carried out online; a sample of 498 people was obtained within one week in July 2011. An agency providing panel services acquired the participants, so that quotas reflecting the structure of the German population could be implemented and the sample is assumed close to representative at least for the population aged 65 or younger. Older people are still underrepresented both among internet users and panelists. Table 1 gives an overview of the sample structure in terms of socio-demographic characteristics. The 17 vegetarians (3% of the sample, which is in line with current estimations of the share of vegetarians in Germany) were excluded from further analyses, since the dependent variable, reduced meat consumption, would make no sense for them. Berndsen and van der Pligt (2004: 74) report the same procedure for their analyses.

Table 1. Sample characteristics

Gender	53.2% male,46.8% female
Age [years]	M = 41.24 (Sd = 12.44)
Income distribution	< 899EUR: 12.4%; 900-1499 EUR: 24.1%; 1500-1999 EUR: 18.3%; 2000-3199 EUR: 27.1%; 3200- 5499 EUR: 14.1%; > 5500 EUR: 4.0%
Education level	No degree: 1.0% Lowest degrees: 16.7% Medium degree: 38.7% Highest degrees: 43.5%
Household size (persons)	M = 2.39 (Sd = 1.31)

M = Mean, Sd = Standard deviation
Differences to 100% are due to rounding

In the following section, the results of the content analysis and the survey are reported.

Results

Results of the content analysis

The content analysis delivered five frames, of which two were consistent with the existing literature on animal welfare perception (Duncan and Fraser 1997, Fraser 2008, 2003, Lund and Roecklingsberg 2001, te Velde et al. 2002): The natural living frame, representing the perspective that husbandry systems should be as close as possible to the natural living conditions of the animals, allowing them to express their normal, inherent behavior (te Velde et al. 2002, Fraser, 2003), and the biological functioning frame, comprising the view that if animals grow and reproduce well and stay healthy everything is alright (Fraser 2008, 2003, Lund and Roecklingsberg 2001, Duncan and Fraser 1997).

There are also some animal rights groups which set the animal welfare discussion within a broader frame of immorality of meat production and consumption, criticism of economic growth and ignorant farmers who do not care about their animals (moral frame). Another frame produced by consumer and animal rights groups relates to the problem of market failure

<u>and reluctant farmers</u> (farmers not being interested in societal needs, hiding behind the argument of economic pressure and blocking changes, politicians failing to fight meat scandals). This frame is contrasted by a frame produced by farmers' lobby groups, highlighting the problem of <u>economic pressure</u>.

Results of the consumer survey

As to the future meat consumption, 21.7% of the participants stated that they would probably reduce their meat consumption in the future, while 52% would rather not reduce it and 26.3% are undecided. Comparing the mean propensities of men and women to reduce meat consumption in the future, men state a significantly ($p = 0.01$) lower propensity ($\bar{x} = 2.9$ for men compared to 3.3 for women). An explorative principal component analysis with Varimax rotation was carried out to find out whether the frames as identified in the content analysis are mirrored by respective correlations among different statements belonging to those frames. The results of the factor analysis are shown in the table below.

Table 2. Results of the factor analysis to identify relevant frames

Natural living frame (CRA = 0.91)	Factor loading
To feel comfortable an animal needs room to move.	0.871
Access to open-air runs is necessary for an animal to feel well.	0.861
Animals are sentimental beings and need to be treated like that.	0.821
Animals have feelings and are able to suffer just like human beings.	0.813
A good hygiene is required for an animal to feel comfortable.	0.747
An animal needs the possibility to express its inherent behavior.	0.733
Moral frame (CRA = 0.85)	
Modern animal husbandry systems are only animal torture.	0.790
Most farmers offend the values of our society with their way of keeping animals.	0.754
There are no good arguments for animal husbandry systems that are used today.	0.723
Most farmers disregard how the animals feel.	0.673
To slaughter animals to eat them for me is a contradiction to our societal values.	0.651
Meat processors in Germany do not have any morality at all.	0.612
I am skeptical towards the economic growth of the agribusiness.	0.606
It is my civic responsibility to take stand for the well being of animals.	0.584
Preservation of the status quo frame (CRA = 0.84)	
The more animals kept at a farm, the better the animal welfare.	0.792
If animals grow fast and gain weight, it's a sign for their well being.	0.718
Our laws and legal regulations for animal husbandry are completely sufficient.	0.718
If scientists state that animals are healthy in modern husbandry systems then it is alright for me.	0.717
Tightening animal husbandry laws is detrimental to our competitiveness.	0.681
Animals are animals, all this animal welfare talk is nonsense.	0.675
Market failure and reluctant farmers frame (CRA = 0.73)	
Farmers are principally against changes.	0.783
Farmers are not interested to respect societal concerns.	0.707
Farmers hide behind the argument of profitability.	0.707
German politics failed with regard to meat scandals.	0.515
Economic pressure frame (CRA = 0.7)	
Farmers have no other choice as producing cheap.	0.751
Only within large scale units farmers are able to earn their living.	0.734
Stricter requirements for animal husbandry in Germany would lead to the import of meat from countries where conditions are worse.	0.712
Modern animal husbandry leads to the abandonment of small scale farms.	0.619

The factor analysis reproduced the frames described in the content analysis, which overall explain 61% of the variance. All factors have Cronbach's Alpha values of above .7, showing a good reliability of the frames (Nunally 1978). The descriptive analysis of the frame indices shows a rather high agreement of citizens to the natural living frame. Moderate agreement can be found for the "market failure and reluctant farmers" and the "economic pressure"-frames, while the "preservation of the status quo" frame, is rather disagreed with. To the extreme "moral frame" only 8.4% of the people (strongly) agreed, but also only 8.2% (strongly) disagreed, showing the broad heterogeneity of moral evaluations of animal husbandry in the population.

Table 3. Bivariate Pearson correlations between frames and TPB-constructs

	Natural living frame	Moral frame	Preservation of the status quo frame	Reluctant farmers frame	Economic pressure frame
Prob. of reducing meat consump. in the future	0.003	0.271**	0.003	0.018	-0.179**
Subjective norm reduced meat consump.	-0.051	0.354**	0.287**	0.041	-0.137**
Perceived control reduced meat consump.	0.029	0.308**	-0.052	-0.046	-0.096*
Attitude towards meat consumption	0.095*	-0.324**	-0.061	0.164**	0.358**

**correlations are significant at the 0.01-level.
* correlations are significant at the 0.05-level.

The results of the correlation analysis show that only the moral and the economic pressure-frame significantly correlate with all TPB-constructs. The frame "preservation of the status quo" is only correlated with subjective norm, and the other frames are neither correlated to the intention to reduce meat consumption nor to subjective norm and behavioral control. The latter two constructs in turn show correlation coefficients of $r = 0.41$** and 0.50** respectively with the dependent variable of intention to reduce meat consumption.

To determine the contribution of the model components on the dependent variable – intention to reduce meat consumption – first, separate multiple OLS-regression analyses are carried out. In a second step, the full model is estimated, so that mediation effects are taken into account.

Taking into account only the frames as independent variables, the moral frame has the highest impact on intentions to reduce meat consumption (ß = 0.29***), followed by the economic pressure frame (ß = -0.21***). The other frames do not have a significant impact on the dependent variable. Overall, the two frames explain about 11% of the variance in intentions to reduce meat consumption.

Among the socio-demographic variables, a separate regression analysis shows that only gender significantly impacts intentions to reduce meat consumption. However, the ß-coefficient for females is 0.11* only, and the explanatory power of corr. R^2=0.01 is negligible. The same pattern results from a separate regression taking only information on meat consumption frequency into account: only *pork* consumption frequency has a significant impact (ß=-0.17***, $R^2 = 0.03$). Earlier studies attributed an important role to past behavior in determining future behavior. However, in this context, it contributes only very little to the explanation of future intentions to reduce meat consumption.

The last separate regression model includes the TPB-constructs of behavioral control and subjective norm. These constructs together explain 32% of the variance in intention to reduce meat consumption, with behavioral control being the strongest predictor (ß = 0.42***).

Subjective norm also has a highly significant effect with a standardized ß-coefficient of 0.28***.

The full regression model (Table 4) shows that the frames' effect on meat consumption reduction is, in line with the TPB-model, partially mediated by subjective norm as well as perceived behavioral control. The results of the full multiple mediation regression reveal perceived behavioral control to have the highest impact (ß = 0.37), followed by subjective norm (ß = 0.26). The third factor is the attitude towards meat consumption (ß = -0.11), followed by the frequency of pork consumption (ß = -0.08) and the "economic pressure frame" (ß = -0.08),

Table 4. Regression analysis to explain intention to reduce meat consumption

	final ß	T	p	Change in R^2	r
Behavioral control	0.37	9.33	0.000	0.25	0.503
Subjective norm	0.26	6.65	0.000	0.07	0.412
Attitude to meat consumption	-0.11	-2.59	0.010	0.01	-0.309
Pork consumption frequency	-0.08	-2.06	0.040	0.01	-0.165
Economic pressure frame	-0.08	-1.98	0.049	0.01	-0.199

Corr. R^2 = 0.35; F = 51.6; r = Pearson correlation with dependent variable

The significance of the model is reflected by the F-value of 51.6, and also the T-values for the single ß-values show significance levels of at least 0.95 The coefficients for the latter three constructs, however, are quite small, as is their explanatory power: The corrected R^2 of this regression analysis is 0.35, and thus not much higher than the model containing only TPB-constructs. The dominance of the TPB-items is also underlined by the changes in R^2 as documented on the right hand side of Table 4.

The final step of the analysis is a regression model to explain the attitude towards meat consumption. Results are reported in Table 5.

Table 5. Regression analysis to explain the attitude towards meat consumption

	final ß	T	p	Change in R^2	r
Economic pressure frame	0.33	8.234	0.000	0.12	0.358
Moral frame	-0.41	-8.937	0.000	0.08	-0.324
Pork consumption frequency	0.15	3.717	0.000	0.04	0.246
Reluctant farmers frame	0.18	3.787	0.000	0.03	0.164
Preservation of status quo frame	0.13	3.056	0.002	0.02	0.061
Poultry consumption frequency	0.14	3.393	0.001	0.01	0.167
Gender	0.12	3.001	0.003	0.01	
Natural living frame	0.09	2.016	0.044	0.01	0.095

Corr. R^2 = 0.31; F = 27.9; r = Pearson correlation with dependent variable

As can be seen from Table 5, the attitude towards meat consumption can be explained to 31% by the frames extracted from the survey, current behavior of meat consumption, and gender. While the economic pressure frame alone contributes already 12% to the explanation of variance in attitude, the moral frame shows the highest ß-value and contributes 8%. The actual habits of eating meat (expressed by frequency) play a minor role, with beef consumption having no significant impact at all. Men furthermore exhibit a slightly more positive attitude towards meat.

Discussion

The analyses presented here show that the frames created by the different lobby groups in general can be retrieved in the answering patterns of the participants of this survey. With respect to the first research question, it can be further stated, that the level of agreement to the frames put forward by the rivaling lobby groups is not homogenous, in that animal rights or consumer protectionists are generally stronger agreed with than farmer lobby groups. However the only frame which is rather disagreed with on average is the "preservation of the status quo" frame, which comprises important arguments of the farmer lobby groups.

However, the economic pressure frame, which is used by farmers' groups to justify the way animal husbandry is executed today, is moderately agreed with, and the moral frame, which represents the core of most animal rights and consumer protection groups' positions and campaigns, shows a nice bell-shaped curve, with almost equal shares of people carrying the extreme positions and a total of 74% being undecided or rather in favor or against. This shows the broad heterogeneity of opinions – and moral evaluations, specifically – in the German population and the importance of balancing the interests within society, which are not necessarily articulated by the interest groups dominating the debates.

While the separate regression models show that the explanatory power of frames as well as socio-demographic variables and meat consumption frequency is quite low or even negligible. The low impact of the frames would be in line with the argument put forward by Ajzen and Fishbein (2005) that the explanatory power is much higher if there is a direct link between the attitude and a specific behavior. From earlier studies (Sparks et al. 1997, among others), however, a greater impact of the current meat consumption frequency would have been expected. For gender, also a higher impact could have been expected, given that women are often thought to be more sensitive to questions of animal welfare and might have lower preferences for meat. However, even in the separate model testing only the impact of socio-demographics, it only accounts for around 1% of the variance of intention to reduce meat consumption.

It is specifically worth noting that the impact of the moral frame becomes non significant when controlling for the TPB-constructs - from ß = 0.29 in the separate (frames only) model. The correlations with subjective norm and behavioral control respectively show that there is a relatively strong and highly significant association with both constructs, but also with attitude. As shows the regression of attitude towards meat on the frames as well as current behavior and socio-demographic variables, the frames can explain about 25% of the variance in attitude, with the moral frame having the highest ß-value. Thus, one should be careful in arguing that the moral evaluation of meat production does not play a role for meat consumption, but at the same time should be aware of the mediating processes induced by perceived behavioral control as well as the perceived pressures from the social surrounding of a person.

It is further noteworthy that earlier studies mainly find attitudes to have a stronger impact on intention than the other TPB constructs (McCarthy et al. 2004), while here, behavioral control and subjective norm have a stronger impact. This might be due to the fact that, since only a reduced form of the TPB was applied in the present study, the attitude measure was more unspecific compared to the BC and SN constructs.

Also, while Saba and di Natale (1999) found that "habit outweighed attitude in the impact on intention of consuming", the pork consumption frequency in the present study is only of minor importance (but still significant) in explaining the intention to reduce meat consumption. The reasons for this difference however are likely to lie in the difference of measures for both the dependent and the independent variables.

Finally, it has to be stated that the explanatory power of the model still is rather low, although a R²-values of 0.35 or 0.31 are considered satisfying in psychological research and a large proportion of published regression analyses achieve lower values (Eisenhauer 2009). One

important omitted variable might be food safety. In the light of a renewed discussion about antibiotic-resistant bacteria on poultry in the end of 2011, this could play a crucial role for individual plans to reduce meat consumption.

Conclusions

With this study, it could be shown that the frames of the consumer and animal rights as well as those of the farmer lobby groups have been anchored in the citizens' minds: the factor analysis shows a clear structure of arguments reflecting the frames predefined following the content analysis of public statements of the different groups.

The regression analyses to explain intentions to change meat consumption show that the willingness to reduce meat consumption is driven by perceived behavioral control and subjective norm to a larger extent than by the frames. Especially the effect of the moral frame, which is the most extreme of the identified frames, is strongly mediated by these variables. From this result, it could be concluded that although consumer and animal rights groups are very successful in determining the public perception of farm animal husbandry, this is not directly translated into actual behavior. However, the different models also clearly show the interrelatedness of the constructs, with the moral frame having an impact on both, perceived behavioral control and perceived pressure from the social surrounding of a person.

Further, the tendency of participants to agree to the "market failure and reluctant farmers" frame show, that there is a certain image problem farmers and their interest groups which must be solved – probably using conflict resolution techniques (Drake and Donahue 1996) which lead to a compromise between the interests of society on the one hand and farmers on the other. Drake and Donahue (1996) also point out the potential of frames as communicative means to induce integrative processes of conflict resolution. Considering the results presented in this paper, it can be assumed that further research into this field can contribute both to the theoretical understanding of conflicts between agribusiness and society as well as to the practical strategies of conflict resolution.

Further analyses of the data gathered in this study will include latent class regression analysis in order to account for unobserved sources of heterogeneity within the sample. As an extension of the model, food safety issues should be included in future surveys, to draw a more complete picture of determinants of meat consumption and intentions to change it. Furthermore, the Theory of Planned Behavior in this study has been applied with strongly reduced measures, leaving the direct determinants of attitudes, subjective norm, and behavioral control aside. McCarthy et al. (2004) in their study extensively

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