Consumer empowerment in food retailing and the role of altruistic motives: an application of the theory of planned behavior

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Abstract

We apply the theory of planned behavior to the intention of consumers to provide information to food retailers in order to exert influence on their assortments. In addition, we use the dominance of selfish or altruistic motives as moderation variables and based on these variables we compare groups regarding the formation of their intention. The study is based on a sample of 850 consumers in Germany. Results show that intention is mostly influenced by the attitude towards the behavior, followed by the subjective norm. Perceived behavioral control is the least important variable. This pattern changes when analyzing altruistically motivated consumers: their intention is only affected by the subjective norm. We conclude that social norms are able to explain altruistic motives for the behavior in question.

Keywords:
altruistic motives, consumer information, food retailers, norms, theory of planned behavior

Topic:
The planned behavior approach: dimensions, developments, applications

Introduction

Communication between consumers and retailers used to be based on personal contacts until recent years. Today this personal communication is mainly replaced by technical solutions. In this context, consumers provide data to companies by using loyalty cards, company websites, contact forms and when participating in surveys or idea contests. The data transmitted refer to their person, their purchasing behavior, and their interests. This leads to a large amount of digital consumer data in the hands of companies. This information is a great asset for firms because knowledge about current and potential consumers allows firms to improve marketing activities, increase effectiveness, and reduce waste coverage (e.g. Rust & Verhoef, 2005; Blattberg *et al.*, 2008). For consumers this means risks as well as opportunities. This paper concentrates on the opportunities: Consumers may benefit from products, services and information which are adjusted to their personal needs (Moynagh & Worsley, 2002). Indeed, consumers gain power by interacting with companies because they exert some influence on the assortment (Dagevos, 2000; Rezabakhsh *et al.*, 2006). The objective of this paper is to analyze the process by which consumers' intention to provide information to food retailers is formed in order to better understand consumers' behavior in the information age.

Consumers have different aims regarding companies' assortments. Given that their basic needs are satisfied, people have increasingly assumed responsibility for their consumption behavior during the past decades (Newholm & Shaw, 2007). This is particularly true for the food sector. Consumer awareness for sustainability issues is comparatively high in Germany. In the first place it is driven by concerns about the impact on society and secondly by environmental concerns (Stolz *et al.*, 2013). Thus when consumers engage in relationships with companies, the benefits they expect can be categorized as being either selfish or altruistic (Füller, 2006). Therefore, we compare different consumer groups based on selfish or altruistic motives with respect to the effect sizes of different antecedents in the theory of planned behavior (TPB). Hence, the aim of this study is twofold: first, we want to identify the influencing factors for consumers' intention to provide personal information for the purpose of exerting influence, and second, we are interested in whether a difference in influencing factors is due to the dominance of selfish or altruistic motives driving consumer behavioral intention. The results provide evidence for companies and consumer organizations regarding the possibility to cooperate in designing the assortment. Above all this paper aims to contribute to the research about applications of the TPB in the realm of altruism. Our study is distinct to Oh and Yoon (2014), who postulate altruism as an antecedent of attitudes towards

ethical behavior. We in contrast consider altruistic motivation as a moderator in the traditional constructs of the TPB. In this we follow Ajzen and Fishbein (1970) and Heath and Gifford (2002).

We examine this issue within the food sector. The food sector has been undergoing huge changes in the last decades due to the increasing importance of knowledge, information, and relationships. Due to their privileged access to consumer data and the creation of private labels, food retailers have gradually gained power at the expense of food producers (Kinsey, 2001). Because of this powerful position in gathering and analyzing consumer data and in creating the assortment of products, services, and information, our study applies to the information provision by consumers to food retailers.

The paper proceeds as follows. The theoretical background will bring together the TPB with altruistic and selfish motives. The methods section will explain the procedure of creating the questionnaire and collecting and analyzing the data. Then, the results will be presented: first, for the whole sample, and second, for the group comparisons. The results will be discussed in the light of the theoretical background. The article will then conclude.

Theoretical Framework and Derivation of Research Questions

Theory of planned behavior

The TPB (Ajzen, 1985; Schifter & Ajzen, 1985; Ajzen & Madden, 1986) derives from social psychology and is widely used to explain human behavior and behavioral intention. It was built on the theory of reasoned action (TRA [Fishbein & Ajzen, 1975; Ajzen & Fishbein, 1980]). The TRA states that behavior follows directly from behavioral intention and that intention arises from the attitude and the subjective norm. Because most behaviors at least partly depend on external factors, Ajzen (1985) introduced perceived behavioral control (PBC) as a third factor affecting behavioral intention. He recast this enlarged theory as the TPB. Attitude, the subjective norm, and the PBC are thought to interact with each other (Ajzen & Madden, 1986).

We define the intention as the motivational factor influencing a behavior (Ajzen, 1991). Attitude is defined as the evaluation of a behavior as being either favorable or unfavorable. Subjective norm is the perceived social pressure from others to either perform or not perform

a behavior. PBC is defined as the perceived easiness or difficulty of performing a behavior (Ajzen & Madden, 1986).

A meta-analysis of 185 TPB applications through the year 1997 showed that, on average, 39% of the variance of the intention could be explained by this theory. Attitude turned out to have the strongest effect on the intention, followed by the PBC. The influence of the subjective norm is significantly weaker (Armitage & Conner, 2001).

The TRA was primarily intended to explain behaviors and not outcomes (Ajzen & Fishbein, 1980). The TPB more focuses on goal-directed behavior (Ajzen, 1985; Ajzen & Madden, 1986). However, there remains some confusion about which construct, behavior or goal, is appropriate. Following Perugini and Bagozzi (2001) we will specify both a behavior and its goal.

The TPB requires that all of its constructs have the same level of specificity. Therefore, all of the constructs have to be defined in terms of action, target, context, and time (Ajzen, 1988/1991). For our survey the following specifications were formulated:

- Behavior: to provide information about oneself and one's consumer behavior
- Goal: to exert influence on the assortment
- Target: to food retailers
- Context: different means of information exchange, including homepages, loyalty cards, consumer integration programs, surveys, registrations in address-lists or communications via telephone, mail, e-mail or online contact form
- Time: within the next half year

Therefore our first research question is, whether the TPB is suited to explain information provision to food retailers in order to exert influence on their assortment. Additionally we are interested in the relative effects of attitude, subjective norm and PBC on intention.

Altruistic and selfish motives

The term altruism (as opposition to egoism) was coined by Comte (1875). In this spirit, altruism can be defined as "a motivational state with the ultimate goal of increasing another's welfare." Egoism, on the other hand, "is a motivational state with the ultimate goal of increasing one's own welfare" (Batson, 1991, pp. 6-7). The motives for carrying out a behavior, not the behavior itself or its consequences, make the behavior altruistic or selfish (Peacock *et al.*, 2005).

Hence, altruism is aimed at directly helping other people, increasing the welfare of anonymous members of the society, or promoting pro-environmental behavior. The last aim refers to "intergenerational altruism" (Hultzkrantz, 1992; Jouvet *et al.*, 2000).

It would be an oversimplification to characterize people as either selfish or altruistic in general. Situational and individual differences influence whether a person becomes aware of his behavior's consequences to other people. According to Schwartz's norm-activation model (1970), the awareness of consequences is a prerequisite for the activation of moral norms. This awareness will lead to the decision for prosocial behavior when the one acting ascribes responsibility for his behavior and its consequences to himself.

Thus, norms are regarded as important factors in the development of altruistic motivation and altruistic behavior (e.g., Berkowitz, 1972; Schwartz, 1977; Schwartz & Howard, 1981; Smith & Mackie, 2007). For example, the "social responsibility norm" is the expectation that people help those who are dependent upon them (Berkowitz, 1972). The norm of reciprocity includes expectation to return help or benefits received (Gouldner, 1960); reciprocal altruism, hence, can explain altruism with the expectation of rewards (Trivers, 1971).

Altruistic and selfish motives in the context of the TPB

When relating altruistic motives to the TPB, we have to be very careful with the definition of norms. Schwartz (1977) distinguishes between two types of norms. Internalized norms, also called "moral norms", are seen as self-expectations: expectations, obligations, and sanctions are positioned in the self. These norms are thought to be closely linked to altruism (Schwartz, 1977, Schwartz & Howard, 1984) and pro-environmental behavior (Black *et al.*, 1985; van Liere & Dunlap, 1978; Hopper & Nielsen, 1991). In contrast, "social norms", as Schwartz calls them, represent the expectations, obligations, and sanctions of others. The activations of these norms result in behaviors that benefit the person's own reference groups. However, they are not sufficient for explaining altruism (Schwartz, 1977). The TPB construct subjective norm, which is defined as a person's "perception that most people who are important to him think he should or should not perform the behavior in question" (Ajzen & Fishbein, 1980, p. 57), corresponds with Schwartz's social norms. Fishbein and Ajzen decided against integrating moral norms into their theory. In contrast to Schwartz they see moral norms as being part of the subjective norm (Fishbein & Ajzen, 2010). Nevertheless, other researchers include moral norms in the TRA or the TPB, as Manstead (2000) shows in his literature

review. Despite some relationships between moral norms and the other constructs, Manstead states that moral norms are different from the original TRA and TPB constructs.

With regard to a moderator effect of selfish or altruistic motives, the following two studies seem to be most instructive. Ajzen and Fishbein (1970) conducted a TRA experiment in the context of the prisoners' dilemma. They manipulated participant's behavioral intention by providing them with different objectives for the game. When participants were told to aim at individually getting more points than the other player, the attitude's effect on intention was highest. When instead the objective was to gain as many points as possible jointly with the partner, attitude had no significant effect on intention, but the effect of subjective norm increased. It is noteworthy that in this study the subjective norm refers only to the game partner's expectations, who is directly affected by the other participant's decisions.

Heath and Gifford (2002) applied the TPB to pro-environmental behavior in two phases. When the behavior required much effort, it was significantly affected by moral norms and problem awareness. In this case, the influence of the subjective norm and, to a lesser extent, the attitude on the intention were higher than in the low-effort phase, when the behavior was no longer regarded to be a moral behavior. However, in both effort phases the effects of attitude, subjective norm, and PBC on intention were significant.

Our study is based on the original TPB. We will divide our survey participants into different groups depending on their motives. Research question two is, whether the dominance of altruistic or selfish motives act as a moderator on the formation of behavioral intention. Based on the path coefficients found by Ajzen and Fishbein and by Heath and Gifford, we expect the intention of the altruistically motivated consumers to be more strongly affected by the subjective norm than is the intention of selfishly motivated consumers. Regarding the effect of attitudes the two studies provide different results. We expect it to be weaker among altruistically motivated consumers, because when the influence of other people increases, the influence of the own person should decrease. However, we do not expect the attitude effect to vanish. Because in our case the subjective norm refers to people, who are not concerned by the intended behavior, we expect a slighter shift away from own interests towards the interests of others than found by Ajzen and Fishbein.

The results will elucidate the relative importance of the three independent variables of the TPB. They will also provide information about how altruistically motivated consumers build intentions as compared to selfishly motivated consumers.

Method

Questionnaire design

The questionnaire design follows the recommendations for constructing a TPB-questionnaire by Francis *et al.* (2004) and Ajzen (2006). Since we examine the formation of intention but not the behavior itself, we have to measure attitude, subjective norm, PBC, and intention. Attitude is measured using a semantic differential. The subjective norm and the PBC are each measured by three items. Intention is measured by two items. Each item is answered on a seven-point rating scale, as represented by the numbers from one to seven. These items are presented in appendix A.

The selfish and altruistic motives are assessed as elements of the behavioral beliefs (Ajzen & Fishbein 1980). These motives are possible consequences of providing data in order to exert influence. Salient behavioral beliefs are derived from a group discussion conducted before constructing the questionnaire. The desirability measurement, based on three of these consequences, is used for generating the groups. Desirability has to be specified on a seven-point rating scale. The endpoints are verbalized as "very desirable" and "not at all desirable" (the procedure for measurement of beliefs is based on Ajzen, 2006 and Francis *et al.*, 2004). These three items are:

- "I can benefit myself from the adjusted assortment."
- "I can contribute to other consumers' profits from the adjusted assortment."
- "I can contribute to greater consideration of environmental protection and social working conditions."

The first item is assumed to measure selfish behavioral motives, whereas the other items are assumed to measure altruistic motives. The groups are populated by computing the average assessment of desirability of the consequences of the second and third motives and comparing it to the consequences of the first motive. Individuals who state higher desirability for the first item are assigned to the group of selfishly motivated consumers. Individuals who rated personal benefits and benefits for others as equally desirable were assigned to the neutral group. Individuals who state higher desirabilities for the last two items on average are assigned to the altruistically motivated group.

Data collection

Data collection took place from 22 February 2010 to 1 March 2010 by means of a web survey. The participant pool included 850 German members of an access panel. Quota sampling regarding age and federal state was applied to generate a sample that conformed to German Internet users. Additionally, only those consumers who are responsible for buying food – either alone or together with other household members – were selected. This procedure allowed including only consumers for whom the research topic is relevant.

Data analysis

Covariance-based structural equation modeling was used for data analysis. This method allows for concurrent testing of all causal hypotheses of the model and provides an overall measure of the model fit. Its application to latent variables, which cannot be observed directly but must be measured by manifest indicator variables, is based on the work of Jöreskog (1973/1982). Model parameters are estimated by approximating the implied covariance matrix as closely as possible to the sample covariance matrix (Bollen, 1989b). The χ^2 goodness-of-fit test determines whether the theoretical model fully fits the data. However, because this criterion is too strict (Browne & Cudeck, 1993) and too sensitive to sample size, the model evaluation is based on alternative goodness-of-fit measures (Byrne, 2001). Following Little (1997), who dealt with multiple group comparison, we decided to use the NNFI (Non-Normed Fit Index, also known as TLI [Tucker & Lewis, 1973]), the IFI (Incremental Fit-Index, also known as BL89 [Bollen, 1989a]), and the RMSEA (Root Mean-Square Error of Approximation [Browne & Cudeck, 1993]) for the assessment of model fit. For the NNFI and the IFI, the commonly recommended lower cutoff level is 0.9 (Little, 1997; Steenkamp & Baumgartner, 1998). For the RMSEA, values up to 0.05 represent good, values up to 0.08 stand for acceptable model fit (Browne & Cudeck, 1993).

Initially, this approach was applied for the full sample of 850 consumers to analyze how the intention for information provision is formed and to test the appropriateness of TPB in our context. For the investigation of our second research question, if and how this process differs between consumers with selfish or altruistic motives compared to a neutral position, a multiple-group comparison is conducted, again using structural equation modeling. When comparing the relationships between different groups with regard to the latent variables, measurement invariance is required. It implies that the relationships between the latent

variables and their manifest indicator variables are the same across all groups. If measurement invariance did not hold, one would have to assume that the participants of the groups reacted differently to questionnaire items, and no well-founded conclusions about the differences between groups would be possible (Horn & McArdle, 1992). To compare the structural relationships, the measurement invariance is assessed in three steps: unequal covariance matrices, configural invariance and metric invariance (Steenkamp & Baumgartner, 1998). The inequality of covariances is necessary, because otherwise no differences between groups can be found; the data must then be analyzed jointly. Configural invariance refers to whether the same pattern of fixed and free factor loadings exists in all groups. Metric invariance tests whether the factor loadings for every single indicator variable are the same across groups (Vandenberg & Lance, 2000).

The inequality of covariances can be tested using an omnibus test (Vandenberg & Lance, 2000). To ensure configural invariance, the specified model must fit the data well for all groups, all of the non-zero factor loadings should be significantly and substantially different from zero, and the correlations between the latent variables should significantly differ from perfect correlation. Metric invariance is supported if the model does not significantly worsen by constraining the factor loadings to be equal across the groups. Whether the metric invariance model is significantly worse than the configural invariance model can be assessed by a χ^2 difference test. It should also be tested using alternative goodness-of-fit measures (Steenkamp & Baumgartner, 1998); these values should not decrease more than 0.01 (Cheung & Rensvold, 2002; Little *et al.*, 2007).

Results

Whole sample

Due to the requirements of the sampling procedure, 60.5% of our participants were women. The distribution of the age categories approximately reflected the German population (Statistisches Bundesamt Deutschland, 2013) with the age group 40 to 49 years being the largest group. The mean household size was 2.51 persons. The net household incomes for most participants were in the ranges of 1000 to 1999 € or 2000 to 2999 €. The detailed descriptive statistics summarizing the sociodemographic variables are presented in appendix B.

While testing for the reliability and validity of the constructs' measurements, two attitude items (att_2 and att_3, see appendix A) were removed from the analysis: they did not meet the requirements of item-to-total-correlation or indicator reliability (requirements according to Bearden *et al.*, 1989 and Bagozzi & Baumgartner, 1994). For further analysis, only the three remaining attitude-items were used. The other items and constructs complied with the required standards. Mean, standard deviation, and Cronbach's alpha of the latent variables for the whole sample are presented in appendix C. All means exceed the neutral value 4. The intention's mean amounts 4.24.

The structural equation modeling was conducted using the computer program AMOS Graphics (Arbuckle, 2010). By applying Mardia's kurtosis test (Mardia, 1970), we did not find multivariate normal distribution (critical ratio = 55.576). However, univariate measures of skewness and kurtosis revealed only minor violations of the assumption of a normal distribution (according to West *et al.*, 1995). Therefore, the Maximum Likelihood Method as the standard algorithm was applied for parameter estimation; this method has been found to be quite robust to violations of normality (Chou & Bentler, 1995). On the strength of the χ^2 value, we would have had to reject the model ($p < 0.001$). However, the alternative goodness-of-fit measures TLI, IFI, and RMSEA show reasonable or good fit of the model, as seen in table 1. Thus, to answer research question one, the TPB is suited to explain the intention to provide information to the food retailers in order to exert influence on the assortment.

χ^2 (df)	p	NNFI	IFI	RMSEA
168.227 (38)	< 0.001	0.961	0.973	0.064

Table 1: Goodness-of-fit-measures for the whole sample

Figure 1 shows the path coefficients for the whole sample. For the purpose of better interpretability, standardized coefficients are presented in parentheses. The strongest influencing variable on the intention is the attitude, with a path coefficient of 0.71. The subjective norm, with 0.34, and the PBC, with 0.26, differed only slightly from each other. Attitude and the subjective norm were strongly correlated with 0.72. All paths were significant ($p < 0.001$). Fifty percent of the variance of the intention is explained.

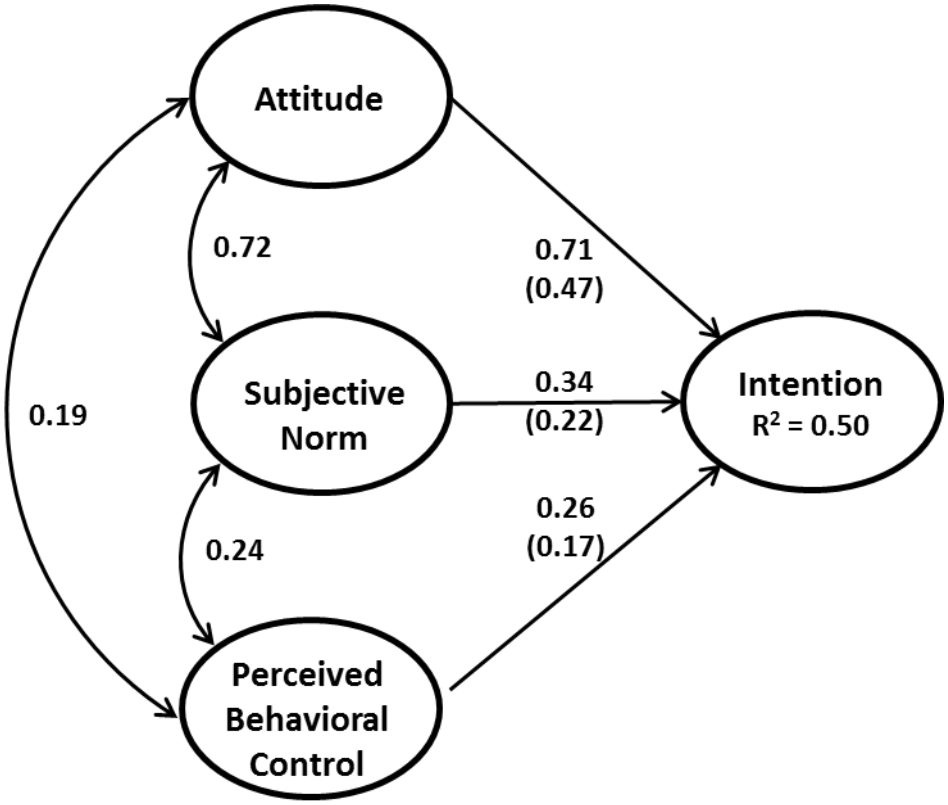

Figure 1: Unstandardized (and standardized) path coefficients for the whole sample

Variable measures in the three groups

Next, we compared three groups. The participants of the first group gave greater weight to selfish motives than to altruistic motives; this finding applied to 344 respondents. For the second group, both categories are equally important; this finding applied to the biggest group, consisting of 386 consumers. For the third group, altruistic motives predominated over selfish motives: only 120 of the 850 survey participants belonged to this altruistically motivated group. The values for each motive item can be found in appendix D. Table 2 enumerates the observed mean, standard deviation, and Cronbach's alpha for each latent construct in each group.

		selfish motives (n = 344)	neutral (n = 386)	altruistic motives (n = 120)
mean	attitude	4.99	5.04	4.48
	subjective norm	4.51	4.63	4.01
	PBC	4.07	4.20	3.93
	intention	4.23	4.48	3.55
standard deviation	attitude	1.08	1.11	1.00
	subjective norm	1.16	1.27	1.11
	PBC	1.28	1.25	1.25
	intention	1.49	1.52	1.58
Cronbach's alpha	attitude	0.80	0.83	0.73
	subjective norm	0.83	0.86	0.77
	PBC	0.78	0.78	0.81
	intention	0.91	0.93	0.89

Table 2: Latent variable measures for the three groups

Note: Range of means: 1 = negative attitude, high social pressure to not provide data, no perceived control, no intention; 7 = positive attitude, high social pressure to provide data, complete perceived control, high intention

Summarizing the information for the mean, one can see that all four constructs have the highest values for the neutral group, closely followed by the selfishly motivated group. The altruistically motivated group showed the lowest values overall. The standard deviations do not differ between the groups. Cronbach's alphas for all of the constructs clearly exceeded 0.7, indicating high reliability (Nunnally, 1978).

Testing for measurement invariance

To test for homogeneity of the covariance matrices, we conducted Box's M (Box, 1949). The covariance matrices are not the same for the three groups ($p < 0.001$). Next we calculated the configural invariance model, which comprises all three groups. This test showed a good model fit (NNFI = 0.958; IFI = 0.971; RMSEA = 0.038), though the χ^2 value was significant ($p < 0.001$). All factor loadings are significant ($p < 0.001$) and substantially different from zero in every group: all standardized factor loadings exceed 0.6 except one, which amounts to

0.55. According to Steenkamp and Baumgartner (1998), these results are in accordance with configural invariance.

To ensure discriminant validity, correlations between all latent constructs in each group were assessed. The highest bivariate correlation is 0.79. Applying a χ^2 difference test for the unconstrained model and a model in which this correlation is fixed to 1, this correlation was found to be significantly different from 1 ($p < 0.001$). It can be concluded that discriminant invariance is met for the three groups.

Next, metric invariance was tested. Therefore, the model was computed again, equalizing the factor loadings between all three groups. The goodness-of-fit measures for this metric invariance model are compared to those of the configural invariance model. This comparison can be seen in table 3. The difference in χ^2 is not significant ($p > 0.05$). The alternative criteria show only a slight reduction in model fit (Δ IFI = -0.002) or an improvement (Δ NNFI = +0.004; Δ RMSEA = -0.002). Hence, metric invariance is confirmed, and the path coefficients between the model's latent variables can be compared between groups.

	χ^2 (df)	p	NNFI	IFI	RMSEA
configural invariance	255.335 (114)	< 0.001	0.958	0.971	0.038
metric invariance	288.367 (136)	< 0.001	0.962	0.969	0.036

Table 3: Tests for metric invariance

Comparison of path coefficients

A multiple-group comparison was used for the TPB model, again constraining the factor loadings to be the same in all three groups. Table 4 provides unstandardized coefficients for all three groups together with their p-values, allowing for derivation of the level of significance. Kim and Ferree (1981) recommended using unstandardized coefficients for the multiple-group comparison because standardized coefficients are affected by both the effect size and the variables' variances in each group.

The path coefficients of the selfishly motivated group and the neutral group do not differ much. In the neutral group, the effect of the attitude on intention is slightly higher than in the selfishly motivated group, whereas for the subjective norm, the opposite is true. The path coefficients of the PBC are the same for both groups. In the neutral group, the attitude clearly

had the biggest effect; PBC follows second, and the subjective norm was least important for intention. In the selfishly motivated group, the attitude also has the biggest effect, but the effect of the subjective norm is larger than that of the PBC. All of the path coefficients are significant in these two groups ($p < 0.05$).

The altruistically motivated group noticeably differs from the other two groups: against our expectations the attitude and as well the PBC had no significant effects on intention. Instead, the subjective norm considerably affected intention, showing a path coefficient of 1.27.

The three groups had similar proportions of explained variance for intention: for the selfishly motivated group this value added up to 49% of the variance explained, while for the neutral group, it amounts to 52% and for the altruistic-motive group to 46%.

	selfish motives		neutral		altruistic motives	
path	coefficient	p	coefficient	p	coefficient	p
att → int	0.61	< 0.001	0.83	< 0.001	-0.21	0.593
sn → int	0.41	< 0.001	0.19	0.049	1.27	0.002
pbc → int	0.29	< 0.001	0.28	< 0.001	-0.04	0.803
att ↔ sn	0.72	< 0.001	0.67	< 0.001	0.84	< 0.001
att ↔ pbc	0.15	0.021	0.22	< 0.001	0.10	0.350
sn ↔ pbc	0.16	0.012	0.29	< 0.001	0.30	0.003

Table 4: Unstandardized path coefficients and p-values

Note: att = attitude, sn = subjective norm, pbc = perceived behavioral control, int = intention. Significant path coefficients are highlighted in grey

In the next step, we wanted to inspect whether the difference for each path coefficient between the three groups is significant or not. Thus, a pairwise comparison of the groups was conducted. The relevant path coefficient was constrained to be equal in both groups. The χ^2 difference test for the model fit compared this constrained model to the unconstrained model, where the path coefficient is allowed to differ between both groups (e.g., Suh & Yi, 2006). If the constrained model was significantly worse than the unconstrained, the path coefficients between the two groups would be significantly different. The p-values of the χ^2 difference test are presented in table 5.

path	selfish vs. neutral	selfish vs. altruistic	altruistic vs. neutral
att → int	0.145	0.045	0.011
sn → int	0.149	0.038	0.010
pbc → int	0.956	0.073	0.078
att ↔ sn	0.324	0.080	0.018
att ↔ pbc	0.424	0.721	0.370
sn ↔ pbc	0.107	0.289	0.975

Table 5: p-values for testing the difference between path coefficients

Note: att = attitude, sn = subjective norm, pbc = perceived behavioral control, int = intention. Significant group differences are highlighted in grey

None of the differences between the neutral group and the selfish-motive group was statistically significant. However, there were significant differences between the altruistic group and the other groups. Regarding research question two we state that the motivation serves as a moderator variable. As it was expected the path coefficient from attitude to intention is weaker ($p < 0.05$) and the path coefficient from subjective norm to intention is stronger ($p < 0.05$) in the altruistically motivated group compared to both other groups. The difference of the effect of the PBC between the altruistically motivated group and the other two groups was only significant at the $p < 0.1$ level, but not at the $p < 0.05$ level. The correlation between the attitude and the subjective norm in this group, though, was significantly stronger than in the neutral group. The other correlation effects did not differ significantly.

Discussion

Whole sample

The values for goodness-of-fit criteria showed that the TPB is well-suited for explaining the intention to provide personal data to food retailers in order to exert influence on assortment. Approximately half of the intention's variance can be explained by the theory. This is a satisfactory result (Armitage & Conner, 2001).

When looking at the whole sample, the attitude clearly was the strongest predictor for intention, which is in line with other applications of the TPB. The subjective norm was the

second strongest predictor, and the PBC was the weakest predictor. This result differs from Armitage and Conner's findings in that most studies show the subjective norm to have the smallest effect on intention. Thus, it can be concluded that providing data to the food retailers in order to influence their assortment is perceived by consumers to be under their control and only rarely affected by external conditions.

Multiple group comparison

When looking at the size of the three groups, we saw that, as a result of their answer behavior, most respondents were assigned to the neutral group and fewest to the altruistically motivated group. Regarding the TPB results, the neutral group and the selfishly motivated group were both in line with previous TPB studies. One unexpected result is that the path coefficients of the neutral group did not lie between the coefficients of the other two groups; instead the path coefficients for the selfishly motivated group were in the middle. However, because there were no significant differences between the neutral and the selfishly motivated consumers, we can regard them as a single group.

Looking at the path coefficients for the altruistically motivated group is particularly interesting because its path coefficients are considerably different from those of the other two groups and from the average findings of other TPB applications. Indeed, we expected the effect of the subjective norm to be stronger for these consumers, but we did not expect the difference between the groups to be that large. Furthermore, we are surprised to find the attitude and the PBC effects to become zero for altruistically motivated consumers.

In contrast to neutral and selfishly motivated consumers, who mainly listened to their own attitudes, altruistically motivated consumers tried to comply with the people around them. This finding is interesting because, in the case of giving information to the food retailers, the behavior is not observed by other people so neither a reward nor a penalty will be put upon the person acting. There may be people who want the society and the environment to benefit in general and who also want to do good things for their fellow men; these people might pay much more attention to the expectations placed on them. In this regard it should be noted that the observed mean for the subjective norm is lower for the altruistically motivated consumers compared to the selfishly motivated and neutral subsamples.

We did not measure moral norms. So the questions arises, what kind of relationship exists between moral norms and social norms. A possible strong association between them could be explained following Hoffman (1983) and Gibbs (2010), according to whom moral norms

develop through the internalization of social norms. If otherwise one regards the subjective norm to be independent of moral norms, then it would have to be considered why the subjective norm turns into such a weighty factor for explaining the intention of altruistically motivated consumers.

Conclusion

To summarize, in general consumers are quite willing to provide information to food retailers to exert influence on the assortment. This offers the opportunity of cooperation between consumers and retailers. If one thinks about interventions to raise the consumers' intention the TPB results are useful cues which of the intentions' predictors to cater to in the relevant subgroup of consumers.

We find the intention to provide information to food retailers in order to exert influence on their assortment to be well-explained by the TPB, while the attitude has the largest effect on the intention, and the PBC has the smallest effect on the intention. The influence of the independent variables on the intention is strongly moderated by the dominance of selfish or altruistic motives: Altruistically motivated consumers' intention is influenced only by the subjective norm, whereas for the other consumers, all three independent variables are relevant. We conclude that the TPB results are very much dependent on the participants who are surveyed. Future studies should recall this specific TPB pattern when applying the theory to a sample that is especially altruistically motivated with regard to the given behavior.

Despite Schwartz's statement that social norms are not able to explain altruism, we find the subjective norm to be the only influencing factor on the intention for the altruistically motivated consumers. Thus, at least for the behavior investigated in this study, we affirm that social norms explain altruistic intentions to a considerable extent. It would be interesting to conduct further research to determine whether this is due to the specific type of behavior or if other behaviors show similar results.

Furthermore, we suggest investigating the relationship between the subjective norm and moral norms. Are they really independent from each other? Thus, it might be interesting to include moral norms into the TPB for this behavior.

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Appendix

latent variable	abbrevi-ation	questionnaire item	scale endpoints
attitude	att_1	"I think that providing personal information in order to exert influence is…"	-good -bad
	att_2		-pleasant -unpleasant
	att_3*		-risky -risikless
	att_4*		-useless -useful
	att_5		-wise -stupid
subjective norm	sn_1	"People who are important to me think I … provide information in order to exert influence."	-should -should not
	sn_2	"People who are important to me would … my providing information in order to exert influence."	-approve -disapprove
	sn_3	"People who are important to me want me to provide information in order to exert influence."	-strongly disagree -strongly agree
PBC	pbc_1	"How much control do you have over providing information in order to exert influence?"	-no control -complete control
	pbc_2	"For me, providing information in order to exert influence is..."	-very difficult -very easy
	pbc_3	"I am confident that I could provide information in order to exert influence if I wanted to."	-strongly disagree -strongly agree
intention	int_1	"I want to provide information in order to exert influence."	-false -true
	int_2	"I intend to provide information in order to exert influence."	-strongly disagree -strongly agree

Appendix A: Questionnaire items and scale endpoints

Note: * = excluded from the analysis

variable	characteristic	percentage / mean
gender	women	60.5%
	men	39.5%
household size (persons)		2.51
age (years)	16-19	11.3%
	20-29	17.9%
	30-39	18.7%
	40-49	19.8%
	50-59	17.8%
	≥ 60	14.6%
household net income (€)	< 500	5.2%
	500-999	11.4%
	1000-1999	28.5%
	2000-2999	28.7%
	3000-3999	14.8%
	≥ 4000	11.5%

Appendix B: Sociodemographic variables

	attitude	subjective norm	PBC	intention
mean	4.94	4.49	4.11	4.24
standard deviation	1.10	1.22	1.26	1.55
Cronbach's alpha	0.81	0.84	0.78	0.92

Appendix C: Latent variable measures for the whole sample

Note: Range of means: 1 = low; 7 = high

		whole sample (n = 850)	selfish motives (n = 344)	neutral (n = 386)	altruistic motives (n = 120)
mean	personal benefit	5.72	6.21	5.67	4.50
	profit for other consumers	5.29	4.99	5.63	5.03
	environment and working conditions	5.43	5.00	5.72	5.78
standard deviation	personal benefit	1.31	0.90	1.34	1.37
	profit for other consumers	1.42	1.40	1.38	1.37
	environment and working conditions	1.36	1.29	1.36	1.22

Appendix D: Mean and standard deviation for measurements of motives

Note: Range of means: 1 = low desirability; 7 = high desirability