



The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
<http://ageconsearch.umn.edu>
aesearch@umn.edu

Papers downloaded from AgEcon Search may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.

No endorsement of AgEcon Search or its fundraising activities by the author(s) of the following work or their employer(s) is intended or implied.

Does trust influence consumer behaviour?

Beeinflusst Vertrauen das VerbraucherVerhalten?

Leef H. Dierks

Christian-Albrechts-Universität zu Kiel

Abstract

Against the background of diverse food scandals this article investigates the role of trust as a determinant of consumer behaviour in Germany. As empirical analyses indicate, the impact of trust on consumer behaviour in a quotidian and presumably safe setting is to be neglected. In the environment of a food scandal, however, trust proves to be a crucial element with regard to a more in-depth understanding of consumer behaviour under uncertainty. Moreover, it is analysed whether different values of trust allow for deriving coherent population segments and whether these can likewise be identified on the basis of consumers' socio-economic features.

Key words

consumer behaviour; uncertainty; food safety; trust

Zusammenfassung

Vor dem Hintergrund verschiedener Lebensmittelskandale untersucht dieser Beitrag die Bedeutung von Vertrauen als Determinante des VerbraucherVerhaltens in Deutschland. Wie erste empirische Analysen zeigen, ist der Einfluss von Vertrauen in einer alltäglichen und vermeintlich sicheren Situation grundsätzlich zu vernachlässigen. Im Umfeld eines Lebensmittelskandals hingegen erweist sich Vertrauen als entscheidendes Element im Hinblick auf ein detaillierteres Verständnis des VerbraucherVerhaltens bei Unsicherheit. Zudem wird analysiert, inwiefern die verschiedenen Ausprägungen des Vertrauens eine Möglichkeit zur Ableitung kohärenter Bevölkerungssegmente zulassen und inwieweit sich diese ebenfalls anhand sozioökonomischer Charakteristika der Verbraucher identifizieren lassen.

Schlüsselwörter

Konsumentenverhalten; Unsicherheit; Lebensmittelsicherheit; Vertrauen

1. Introduction

The increasing number of food scandals in recent years has accentuated the need for an improved understanding of consumers' reactions to random external shocks. Typically, such shocks trigger abrupt changes in consumer behaviour which, preconceiving contingent declines in consumption may culminate in severe welfare losses. Regardless of their fundamental significance, the prevailing and established concepts of demand analysis such as neoclassical microeconomic approaches, among others, do not provide an adequate description of consumer behaviour in the environment of a food scandal – which is evidently influenced through other than exclusively economic parameters. In order to allow for these features nonetheless, the traditional analysis of consumer behaviour under uncertainty is complemented by additionally considering behavioural aspects. Among the most relevant characteristics, particularly with regard to non-transparent and hazardous situations, is the element of trust. As literature suggests, incorporating the latter can be understood as a plausible strategy to reduce

consumers' uncertainty in the context of decision making, most notably involving the purchase of goods possessing mainly credence characteristics. Since this applies to nearly all foods, the significance of trust as a determinant of consumer behaviour might be considered as being equally important as economic factors such as income or price, for example.

For the purpose of ascertaining the impact of trust on consumer behaviour under uncertainty, this article investigates consumers' trust in selected sources of information and discusses the settings and extent to which it influences consumers' behaviour. Moreover, it is analysed whether different values of trust allow for deriving coherent population segments and whether these can likewise be identified on the basis of consumers' socio-economic features. Lessons learnt from this recent field of research provide a valuable insight into consumer behaviour in the environment of food safety scandals and could thus contribute to appropriate measures designed to sustainably safeguard consumers' trust.

2. Trust as an element of consumer behaviour

As no scientific paradigm taken alone can provide a comprehensive explanation of so complex a field as consumer behaviour, it does not seem appropriate to persist in the academic dominance of neoclassical microeconomic approaches but to pursue multifaceted approaches such as behavioural and information economics. The latter approaches explicitly consider the coherence between attitudes and information and their ambiguous impact on behaviour. Furthermore, the self-evident combination of these concepts provides a sound foundation for introducing the element of trust which emerges as a strategy to reduce subjective uncertainty in an environment of incomplete information into the analysis.

Regardless of the renascent interest in multifaceted behavioural elements like trust in comprehensive analyses of consumer behaviour an embedding of the concept into economics is only little beyond its initial stages (HOSMER, 1995). Trust and the conditions under which it might be considered as a market determinant have so far only been sketchily discussed which mostly circumvents a distinct definition of trust. Yet, the perhaps most commonly used concept – particularly in the environment of economics – implies a disposition towards trusting behaviour; i.e. a behaviour accepting vulnerability based upon the personal expectation. Thus, this article follows the definition of NOOTEBOOM (1996) who remarks that 'X trusts Y to the extent that X chooses to cooperate with Y on the basis of a subjective probability that Y will choose not to employ

opportunities for defection that X considers damaging, even if it is in the interest of Y to do so. The trustworthiness of Y depends on Y's true propensity to employ those opportunities'.

Among the first to analyse trust in the perspective of a rational choice model was COLEMAN (1990) whose approach is based on the postulate of maximizing utility under uncertainty and requires the trustor to decide between investing trust – which would yield an expected utility of the expected value of a potential gain less the expected value of a potential loss, and not investing trust – which would not change his utility. The decision whether or not to trust the trustee is based on the probability that the trustee is trustworthy, the potential gain, and the potential loss that might occur if the trustee is not trustworthy. Coherently, trust is to be understood as a subjective probability in this context.

The following paragraphs will discuss approaches that evolved as conceivable alternatives to the expected utility theory. Among these is the theory of reasoned action, which is considered as methodological precursors to AJZEN'S (1991) theory of planned behaviour, on whose enhancement this article will predominantly focus. The theory of reasoned action, as introduced by FISHBEIN and AJZEN (1975), aims at predicting consumers' volitional behaviours and at comprehensively explaining the underlying psychological determinants. In doing so, the theory combines FISHBEIN'S (1963) attitude theory and DULANY'S (1967) theory of propositional control which previously did not explicitly address social behaviour. Consequently, the theory of reasoned action emphasises the impact of behavioural and normative beliefs on the consumer's intention to conduct a given behaviour (EAST, 1997).

According to the theory of reasoned action, intentions comprise two conceptually different determinants. The first predictor of intention is the consumer's attitude towards the behaviour, which refers to the degree to which a consumer has an either favourable or unfavourable evaluation of the behaviour in question. The second predictor of intention is a social factor termed subjective norm, and refers to the consumer's perception of contingent social pressures to perform the behaviour in question. Subjective norms are a function of normative beliefs that indicate the influence important reference individuals or groups in the consumer's social environment have in his selection of behavioural patterns. The consumer will intend to perform certain behaviours when he perceives them as being positively evaluated and desired by the social environment – and vice versa.

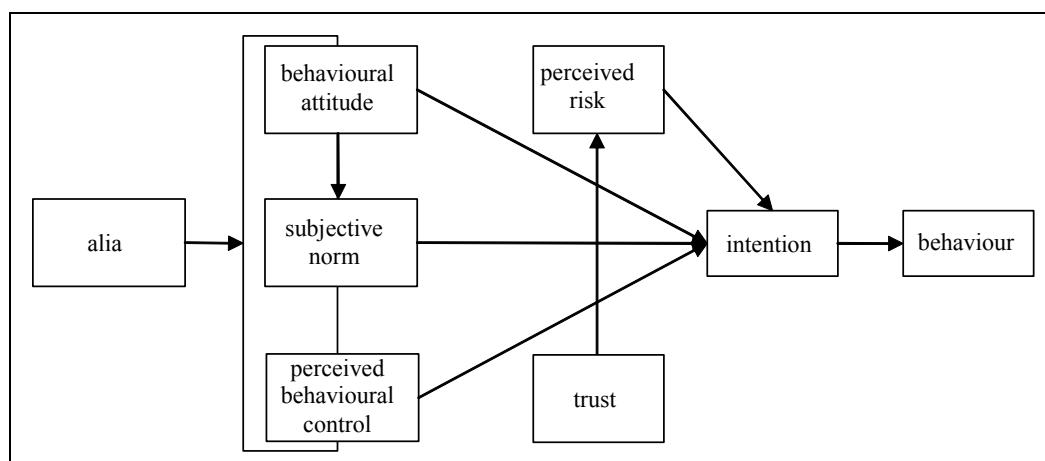
The theory of planned behaviour differs from the theory of reasoned action in its addition of a third determinant of intention; the

perceived behavioural control which refers to the consumers' perceptions of their ability to perform a given behaviour. In analogy to attitudinal beliefs, perceived behavioural control is determined by control beliefs, i.e. beliefs about the presence of factors that facilitate or impede the performance of the behaviour in question. Control beliefs are mostly determined through the consumer's individual experiences, but also through information and experience of the social environment that influences the subjectively perceived difficulty of performing the behaviour in question. The more resources and opportunities individuals assume to possess, and the fewer impediments they anticipate, the greater is their perceived control over the behaviour. Accordingly, the consumer's perceived behavioural control varies across situations and actions.

With reference to the previously discussed determinants of consumer behaviour under uncertainty, the theory of planned behaviour was gradually enhanced by MAZZOCCHI et al. (2004) who included trust as an additional predictor of consumer behaviour. There is considerable empirical evidence that trust is a crucial prerequisite for consumers to engage in economic interactions under uncertainty when the obtainment of complete information can only be ascertained at prohibitively high costs. This applies particularly for the credence characteristics of a good as illustrated by DARBY and KARNI (1973). Since trust under certainty, however, is tantamount to knowledge and thus redundant, emphasis needs to be placed on the individually perceived risk associated with certain behaviour patterns.

The integration of perceived risk and trust into the framework of the theory of planned behaviour and the likewise consideration of the influence of different individual characteristics resulted in the development of the so-called SPARTA II Model outlined in figure 1. The acronym SPARTA is derived from the initials of the variables presumed to determine the consumer's behavioural intentions. These are subjective norm, perceived behavioural control, behavioural attitude, perceived risk, and socio-demographic variables subsumed to alia (MAZZOCCHI et al., 2005). With regard to the information paradox outlined above, trust is hypothesised to affect perceived risk exclusively, and thus has, through its prior interaction with other variables, an only indirect impact on the consumers' intention.

Figure 1. The SPARTA II Model



Source: modified from MAZZOCCHI et al. (2005)

Based on these considerations, this article empirically assesses the impact of trust on consumer behaviour both in a day-to-day and presumably safe setting and under uncertainty. The collected data were analysed employing several standard univariate and multivariate statistical methods.

3. Data

The alleged impact of trust on consumer behaviour under uncertainty was empirically assessed by means of a survey conducted among 451 German households in spring 2004, comprising thirty minute face-to-face, in-home interviews with the family member responsible for purchase and/or preparation of food. Apparently, these persons are more involved in the issue of food safety than the average. As a sampling frame significant at national or regional level for those in charge of purchasing food is nearly impossible, it is obvious to maintain the household as the sampling unit and to ensure that the respondent is representative for the entire household. The sample is based on simple random sampling and probabilistic extraction which guarantees national representativeness.

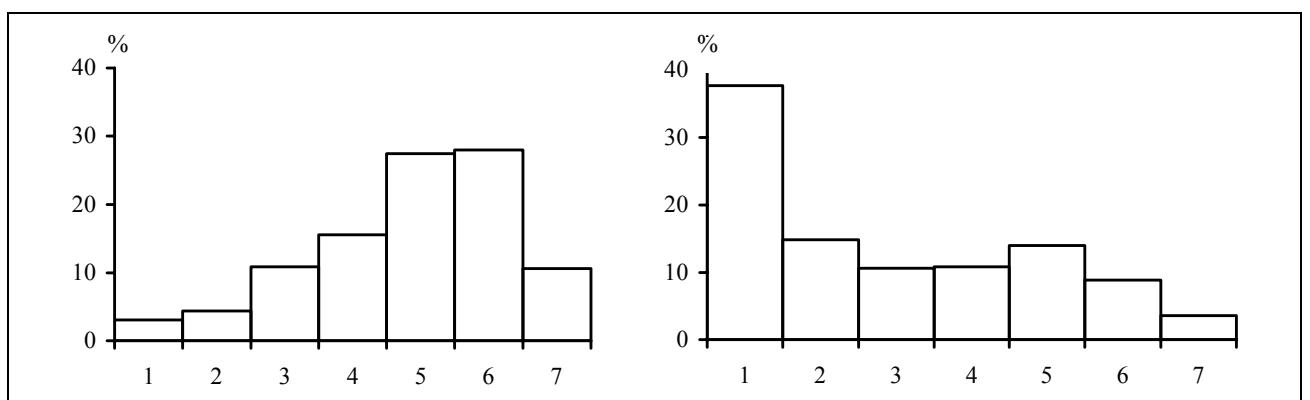
Since a commensurable reaction to a (hypothetical) food scandal can only be expected if a multitude of consumers fears to be potentially affected, a familiar and popular food of frequent consumption needed to be selected. Consequently, chicken, which had already previously been the centre of serious food scandals like the dioxin chicken scandal in Belgium in 1999, for example, was selected as the object of investigation. Taking into account the importance of food safety, chicken furthermore seems to be a suitable frame of reference of the survey since consumers mostly perceive the risk of its consumption as being below average. Any incidence will therefore strike consumers rather unexpectedly and might yield more severe reactions compared to its occurrence in other sectors. In accordance with the selection of chicken as an exemplary food within the survey, the food safety incident will in the following be concretised as a salmonellae outbreak with several affected persons in the interviewee's closer vicinity (DIERKS, 2005).

In a day-to-day and presumably safe setting as depicted in figure 2, an average of 66.1% of the respondents indicate that their likelihood of purchasing chicken in the present

week exceeds the neutral value of four on a seven-point Likert scale. Merely 18.4%, in contrast, reveal a low likelihood, corresponding to three points or less on the seven point Likert scale. 15.5%, finally, remain undecided. Unsurprisingly, this image abruptly changes following the respondents' confrontation with a hypothetical food scandal. As also illustrated in figure 2, 63.2% regard it as unlikely to purchase chicken for the household's home consumption in the aftermaths of a salmonella outbreak, thereby substantiating both an increase in the risk consumers perceive and a clear shift towards a more reserved behaviour in their consumption (DIERKS, 2005).

Within the scope of the survey, respondents were asked to indicate their trust in information provided by selected sources on a seven-point Likert scale. In an adjacent step, a factor analysis was performed on 451 German observations. Following a varimax rotation, the factor analysis yields five well distinguishable principal components termed trust in information provided by media, food chain actors, independent and alternative sources, and vested interests. In an adjacent step, a hierarchical k-means cluster analysis preset to three clusters was performed on the observations. The first population cluster shows significant trust being expressed towards food safety information provided by alternative and independent sources. Strong distrust, however, is expressed towards food chain actors, and milder distrust towards media and vested interests. This implies that the first population cluster mainly comprehends alternative trusters with little confidence in classic institutions such as industry and media. The second cluster suggests that the respondents assigned to this cluster appear to be directly opposed to the first population cluster since consumers display trust in nearly all sources of information. Since distrust is only expressed towards information provided by independent sources, this cluster appears to comprise consumers characterised as conservative trusters. The third cluster is characterized by trust being expressed towards information provided by media and independent sources whilst strong distrust, in turn, is expressed towards information provided by alternative sources, vested interests, and, even though to a negligible extent, towards information provided by food chain actors. The inconsistency of this pattern allows for characterising it as predominantly comprising sceptic trusters.

Figure 2. The intention of German consumers to purchase chicken before and after a food scandal



The value one indicates a very low; seven a very high likelihood to purchase chicken for the household's home consumption in the week following the interview. The responses depicted above exhibit a mean value of 4.85 (2.88) and a standard deviation of 1.47 (1.90) on the underlying seven-point Likert scale.

Source: DIERKS (2005)

4. The impact of trust on consumer behaviour

Following the classification of German respondents into three different population clusters, emphasis is placed on estimating the determinants of consumer behaviour in both a standard situation and after an external shock. The estimation of the SPARTA II model as outlined in figure 1 for both a standard situation and a hypothesised salmonella infestation aims at precisely identifying changes in consumer behaviour directly attributed to the occurrence of a food scandal.

As illustrated above, the consumers' intention to conduct a particular behaviour is determined through subjective norm, perceived behavioural control, behavioural attitude, and perceived risk. Trust presumably has an indirect influence on consumer behaviour. The respective estimates for a standard purchasing situation, based on 377 valid German observations (of a total of 451) of which 31.8% correspond to alternative, 46.4% to conservative, and 21.8% to sceptic trustees, are depicted in table 1.

The intention of German consumers to purchase chicken in a standard situation is particularly determined through their attitude. Differences regarding the impact of attitude across the clusters indicate that respondents characterised as alternative and conservative trustees are influenced in a clearly stronger manner than respondents characterised as sceptic trustees. Interestingly, the opposite applies to perceived behavioural control which has a stronger impact on sceptic trustees than it has on alternative trustees or conservative trustees. Normative beliefs, i.e. subjective norms, have a positive impact on all population clusters. Perceived risk surprisingly has a positive impact on the intention to purchase chicken of respondents characterised as alternative trustees. Its impact on conservative trustees and sceptic trustees, however, is slightly negative – even though mainly negligible. As the impact of trust on consumer behaviour is understood to enter the estimates via the factor perceived risk – and considering that the latter has no significant impact on intention – it needs to be concluded that trust does not affect the behaviour of German consumers in a day-to-day and presumably safe setting.

As expected, the above conclusions abruptly change once respondents are confronted with a hypothetical salmonella outbreak as emphasised

through the increasingly negative impact of perceived risk. The respective estimates are illustrated in table 2.

In contrast to table 1, the above estimates are based upon a number valid number of 424 (out of 451) German observations. Of these, 33.0% correspond to alternative, 43.9% to conservative, and 23.1% to sceptic trustees. As in the standard purchasing situation, attitude remains the decisive factor determining the consumers' intention to purchase chicken in the environment of a hypothetical food scandal. Again, this holds for all population clusters. Yet, whilst the impact of behavioural attitude on conservative and sceptic trustees remains nearly unchanged, the influence on alternative trustees deteriorates. Interestingly, this also applies to the impact of subjective norm on alternative, conservative, and sceptic trustees alike. Except for its influence on conservative trustees which nearly doubles, this furthermore applies to the impact of perceived behavioural control on sceptic and alternative trustees. With exception of its negligible influence on conservative trustees, the impact of perceived risk increases. Following a food safety incidence, perceived risk significantly affects the German consumers' intention to purchase chicken in a negative manner, most notably regarding sceptic and alternative trustees. Generally, the alternative trustees' intention to purchase chicken appears to be particularly influenced through changes in the impact of perceived risk attributed to the transition from a standard purchasing situation to the environment of a hypothetical food safety incidence, whilst other population clusters seem to react in a less distinctive manner.

Table 1. Determinants of consumer behaviour in a standard situation

Variable	Cluster		
	Alternative trustees	Conservative trustees	Sceptic trustees
Constant	-1.2942 (0.7499)	-0.6704 (0.6998)	-1.0010 (0.8474)
Subjective norm	0.0691 (0.06956)	0.1587 (0.0577)	0.0943 (0.0866)
Perceived behavioural control	0.1588 (0.0951)	0.1388 (0.0802)	0.2281 (0.1127)
Behavioural attitude	0.3989 (0.1061)	0.3814 (0.0942)	0.2723 (0.1306)
Perceived risk	0.1057 (0.0786)	-0.0424 (0.0585)	-0.0043 (0.1049)

Standard errors are put in parenthesis. Perceived risk is expressed as a weighted average of the respondents' perception of risk factors. The weights correspond to the level of knowledge of the respective risk factors.

Source: own calculations

Table 2. Determinants of consumer behaviour after a (hypothetical) salmonella outbreak

Variable	Cluster		
	Alternative trustees	Conservative trustees	Sceptic trustees
Constant	-0.3650 (0.7405)	-2.7934 (0.7024)	-1.411 (0.8750)
Subjective norm	-0.0162 (0.0689)	0.0708 (0.0556)	0.0118 (0.0875)
Perceived behavioural control	0.0009 (0.0883)	0.2377 (0.0790)	0.1395 (0.1086)
Behavioural attitude	0.2698 (0.0910)	0.3941 (0.0914)	0.2617 (0.1116)
Perceived risk	-0.2558 (0.0775)	0.0029 (0.0568)	-0.1503 (0.1009)

Standard errors are put in parenthesis. Perceived risk is expressed as a weighted average of the respondents' perception of risk factors. The weights correspond to the level of knowledge of the respective risk factors.

Source: own calculations

5. Can trust be predicted on the basis of socio-economic characteristics?

With reference to literature which generally considers personality traits as equally constituting consumer behaviour, the commonly postulated causal interrelations between socio-economic characteristics of German consumers and their relative trust in diverse sources of information were evaluated. Variables were analysed in terms of their contribution to a prediction of the consumers' classification into predefined population classes. Among others, variables chosen for this purpose comprise the consumers' gender and age, their marital state and level of education, their status of employment and categorised gross annual income and both the number of children and family members living in the respective household. With regard to the classification results denoted in table 3, it generally needs to be remarked that German respondents cannot be reliably classified into population classes exhibiting different levels of trust in principal components on the basis of their socio-economic characteristics since on average only 51.3% of the respondents are classified correctly.

Table 3. Classification results

Principal component	Correctly classified consumers
Food chain actors	52.3%
Media	51.3%
Independent sources	53.0%
Vested interests	48.7%
Alternative sources	51.3%

Source: own calculations

This highly unsatisfactory overall success rate indicates that a classification of German respondents into population classes exhibiting different levels of trust in principal components on the basis of their socio-economic characteristics has failed – even if the percentage of correctly classified consumers clearly exceeds the expectancy value of a random guess (33.3%). Still, an overall success rate of merely 51.3% does not appear to be well suited to allow for a precise prediction of the respondents' trust in any of the five principal components.

Moreover, the respondents' predicted group membership mostly appears to be deficient. Only respondents assigned to the second cluster, generally comprehending consumers who exhibit trust in the respective source, are accurately classified. The percentage of correctly predicted cluster memberships ranges from 79.0% in the case of food chain actors to 94.0% when considering vested interests. Both the respondents' membership in the first cluster, comprising strong distrust, and the third cluster, comprising mild distrust, in contrast, cannot be accurately predicted. Respondents originally assigned to the first cluster appear to be the least accurately classified with a portion of correctly predicted cases ranging from 0.0% to 13.6%. This unsatisfactory classification also applies to those respondents originally assigned to the third cluster. With a portion of correctly predicted cases between 4.4% and 32.9%, they

also appear to be classified in a rather unreliable manner. Surprisingly, incorrectly classified respondents from the first cluster, i.e. those respondents generally exhibiting strong distrust are more likely to be classified as pertaining to the second cluster, featuring trust in the very principal components than to the third cluster, parallelly featuring mild distrust, as could have been expected in principle.

Unexpectedly, prognoses for both the prediction of consumers' overall trust in food safety information and the respective trust in single principal components turn out to be highly imprecise. Even though the overall success rate exceeds the expectancy value of a random guess, it has to be concluded that the chosen socio-economic criterions do not allow for drawing reliable conclusions in reference to classifying German consumers into population clusters exhibiting different levels of trust in diverse sources of information.

6. Conclusions

Results indicate that in a quotidian and presumably safe setting, trust merely has a marginal impact on the behaviour of German consumers. In fact, attitude appears to be the most relevant determinant. This, however, changes when respondents are confronted with a food scandal in whose environment trust proves to be among the most decisive factors influencing the behaviour of German consumers.

Attempts to reliably predict trust on the basis of socio-economic characteristics did not yield satisfactory results which leads to questioning the widespread practise of tailoring information campaigns with regard to consumers' socio-economic characteristics as distinctive features and furthermore implies an often incorrect approach to addressing consumers on behalf of decision makers. Instead of appealing to consumers in terms of socio-economic attributes such as their gender or age, for example, emphasis should preferably be placed on approaches directly addressing population clusters according to their particular trustfulness which, as this publication has shown, is independent of the socio-economic variables selected.

References

- AJZEN, I. (1991): The Theory of Planned Behaviour. In: *Organizational Control and Human Decision Processes* 50 (2): 179-211.
- COLEMAN, J.S. (1990): *Foundations of Social Theory*. Belknap Press, Cambridge.
- DARBY, M.R. and E. KARNI (1973): Free Competition and the Optimal Amount of Fraud. In: *The Journal of Law and Economics* 16 (April): 67-88.
- DIERKS, L.H. (2005): Trust as a Determinant of Consumer Behaviour under Uncertainty. An Empirical Analysis of Consumers' Reactions to a Random External Shock in Europe. Cuvillier Verlag, Göttingen.
- DULANY, D.E. (1967) Awareness, rules, and propositional control: A confrontation with S-R behaviour theory. In: Horton, D. and T. Dixon (eds.): *Verbal behaviour and S-R behaviour theory*. Prentice Hall, Englewood Cliffs, NJ.
- EAST, R. (1997): *Consumer Behaviour: Advances and Applications in Marketing*. Prentice Hall, London.

FISHBEIN, M. (1963): An Investigation of the Relationships between Beliefs about an Object and the Attitude toward that Object. *Human Relationship*, 16, pp. 233-239.

FISHBEIN, M. and I. AJZEN (1975): Belief, attitude, intention, and behaviour: An introduction to theory and research. Addison-Wesley, Reading, MA.

HOSMER, L.T. (1995): Trust: The Connecting Link between Organizational Theory and Philosophical Ethics. In: *Academy of Management Review* 20 (2): 379-403.

MAZZOCCHI, M., A.E. LOBB and B.W. TRAILL (2004): A Strategy for Measuring Trust in Food Safety Information: A Literature Review. University of Florence Working Paper Series on Trust No. 18. Florence University Press, Florence.

– (2005): Causal Model Estimation Results. TRUST-Project Deliverable No. 9. Florence University Press, Florence.

NOOTEBOOM, B. (1996): Trust, Opportunism and Governance: A Process and Control Model. In: *Organization Studies* 17 (6): 985-1010.

Acknowledgements

The author gratefully acknowledges support by Prof. Dr. Claus-Hennig Hanf as well as valuable comments from two anonymous referees.

Financial support on behalf of the European Commission, Quality of Life Programme, Key Action 1 – Food, Nutrition, and Health, Research Project „Food Risk Communication and Consumer’s Trust in the Food Supply Chain – TRUST“ (contract no. QLK1-CT-2002-02343) is also gratefully acknowledged.

Author:

DR. LEEF H. DIERKS

Bockenheimer Landstr. 38-40, 60323 Frankfurt am Main

Tel.: 01 60-63 53 874, Fax: 069-71 61 15 99

E-Mail: ldierks@gmx.de