

The Social Basis of Countertrends to the McDonaldization of Agriculture

[or Rebellng against the McDonaldization of Agriculture]

VERY FIRST DRAFT! NOT FOR CITATION OR QUOTATION!

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Abstract: With a special focus on Germany we first sketch how George Ritzer's theory of McDonaldization can fruitfully be applied to industrial agriculture with both its rationalities and irrationalities. Second, countertrends to McDonaldization are discussed, and it is empirically analyzed who constitutes the social basis of these countertrends. Multivariate analyses are based on the nationwide survey "Environmental Awareness in Germany 2006". Dependent variables are the willingness to purchase fair-trade products in order to support small farmers in developing countries, the non-willingness to buy genetically modified food (GMF), the frequency of organic-food consumption, and the frequency of boycott behavior regarding environmental harmful products. Our results suggest that people with high environmental concern, environmental-group members, people who perceive a strong personal influence on environmental protection and people with a high risk perception constitute the strongest social basis of countertrends to McDonaldization. Furthermore, women are more likely to refuse GMF and buy organic food more often. Somewhat surprisingly, the more people feel informed about health and environmental impacts of food products the less likely they refuse GMF. Although there is no clear possibility to falsify the theory, future research might profit from a direct application of the dimensions of McDonaldization in surveys.

Introduction

Under the headline of “McDonaldization,” George Ritzer has written well-known theoretically based works in social criticism. He uses social theory to critique society and to provide insights into its betterment (Ritzer 1983, 2003, 2006, 2008 [1993]). Although Ritzer mainly refers to general statistics and anecdotal evidence, he understands his work as empirically grounded. So far, the theory of McDonaldization has been applied to a broad variety of domains of social life such as labor processes, the family, sex, and recreation. With a special focus on Germany, we will first sketch how the theory of McDonaldization can fruitfully be applied to industrial agriculture with both its rationalities and irrationalities (mainly based on a work by Andrew J. Knight 2006). Second, in the main part of the paper we will discuss countertrends to McDonaldization, primarily the organic movement, from a theoretical and empirical perspective.¹

We ask specifically, who constitutes the social basis of countertrends to McDonaldization. To answer this question, multivariate analyses were conducted based on the nationwide survey “Environmental Awareness in Germany 2006”. Dependent variables are the willingness to purchase fair-trade products in order to support small farmers in developing countries, the non-willingness to buy genetically modified food (GMF), the frequency of organic-food consumption, and the frequency of boycott behavior concerning environmental harmful products. These variables could be seen as proxies for behavior and behavioral intentions not in line or, explicitly, against rationalization processes in agriculture (i.e. McDonaldization). A variety of explanatory factors including sociodemographic variables, environmental attitudes, a social norm, and risk perceptions are used to shed more light on the social basis of countertrends to McDonaldization.

Our findings suggest that people with high environmental concern, members of an environmental group, people who perceive a strong personal influence on environmental protection and those who perceive high health and environmental risks related to food products constitute the strongest social basis of countertrends to McDonaldization. Furthermore, women are more likely to refuse GMF, and they buy organic food more often than men. Somewhat surprisingly, the more people feel informed about health and environmental impacts of food products the less likely they refuse GMF.

¹ Note that the subtitle of the present paper is similar to a headline of a section in Knight (2006).

Moreover, our results indicate more generally, that most of the explanatory variables considered have context-specific effects and that, due to a possible social desirability bias, empirical analysis should, in addition to conventional data analysis (i.e., using information about the whole range of a variable), also be based on the likelihood to have the highest propensity of the behavior or behavioral intention in question.

The remainder of the paper is organized as follows. In the next section we will give a short overview on the theoretical background of McDonaldization and apply the concept to modern industrial agriculture with both its rationalities and irrationalities. Herein a special focus will be on Germany. Then countertrends to McDonadization are discussed, followed by a description of the data and variables used in multivariate analyses towards behavior and behavioral intentions not in line with or against rationalization processes in agriculture. Finally, we present the results of the multivariate analyses, discuss the findings and conclude with a summary as well as a brief comment on the theoretical substance of the concept of McDonaldization.

Theoretical Background and McDonaldization of Agriculture

Theoretical Background

The concept of McDonaldization is based on Max Weber's (1921) famous theory of rationality and his thinking about bureaucracy. Weber tried to answer the question why and how the modern Western world became increasingly rational compared to the rest of the world. Weber's model of rationalization is bureaucracy, whereas Ritzer's model of McDonaldization is the fast-food restaurant. In fact, Ritzer's model "is an amplification and extension of Weber's theory of rationalization, especially into the realm of consumption" (Ritzer 2008: 25). He defines McDonaldization as "the process by which the principles of the fast-food restaurant are coming to dominate more and more sectors of American society as well as of the rest of the world" (Ritzer 2008: 1). This process can be characterized by the four dimensions efficiency, calculability, predictability, and control:² (1) Efficiency refers to the "optimum method for getting from one point to another" (p. 13). It offers an optimal way to satisfy personal needs (e.g., to satisfy hunger and to be full). (2) Calculability puts the stress on "quantitative aspects of products and services sold" (p. 14). Often customers feel that "more is better" or "big is better" and that a fast delivery of products or services is positively correlated with the quality of products or services. From people's point of view

² Weber has already identified these dimensions in his thinking about bureaucracy.

these quantitative aspects have to be easy recognizable. (3) Predictability means “the assurance that products and services will be the same over time and in all locales” (p. 14). Customers know what they will get in terms of product quality; there are no surprises. Also work processes within organizations (e.g., interactions between managers and employees) or processes between the organization and its customers (e.g., the communication between employees and customers) might be organized in a highly predictable manner. (4) Control means that “technology controls people rather than being controlled by them” (p. 15). The customer’s behavior is standardized due to organizational principles (e.g., “eat quickly and leave” in the case of fast-food restaurants).

Similar examples can be found in most domains of modern life such as buying cars, getting a haircut, losing weight, leisure time activities etc. (see Ritzer 2006). Clearly, the process of McDonaldization and, hence, rationalization has both advantages and disadvantages or rationalities and irrationalities. Examples of the bright side of McDonaldization are (cf. Ritzer 2006: 18): (1) “A wider range of goods and services is available to a much larger portion of the population than ever before.” (2) “Goods and services are of a far more uniform quality; at least some people even get better quality goods and services than before McDonaldization.” (3) “People are more likely to be treated similarly, no matter what their race, gender, or social class.”

Examples of the dark side of McDonaldization are (see Ritzer 2008: pp. 141 for more details): (1) Comparable to Weber’s “iron cage” of rationality, McDonaldization can be characterized by dehumanization of both workers and consumers. Workers have to make jobs where they cannot use their skills in an appropriate manner. Consumers may feel themselves as being part of highly standardized processes (e.g., very uniform interactions between salespersons and consumers). (2) It is often falsely believed that the processes of McDonaldization lead to an increased efficiency. Hence, an important question arises: For whom are rational systems efficient? Such systems might be efficient for producers (e.g., a service hotline), but not for consumers (e.g., the many decisions to make using a service hotline before one can speak with a human person). (3) Although McDonaldization provides a far more uniform quality of products that is well predictable, this process includes the danger of homogenization and, therefore, a loss of the variety of products and behavioral opportunities in everyday life.

McDonaldization of Agriculture

Next to many other domains of modern life, the concept of McDonaldization is also applied to industrial agriculture. Knight (2006: 183) points out that: “[t]oday, the agriculture industry is driven to become more efficient, calculable, predictable, and to control humans and nature through technological means.” A major indicator with regard to the McDonaldization of agriculture is “supersizing farms”. For example, in Germany (as well as in the USA) acreage has been decreasing since 1945. At the same time, farm size has increased, whereas the number of farms has declined. Table 1 presents information about the development of farm sizes from 1949 to 2007. For example, there is a decline of farms from 541,376 in 1991 to 384,288 in 2007. This is especially remarkable in western Germany (Alte Bundesländer, former West Germany) compared to eastern Germany (Neue Bundesländer, former East Germany) where due to agricultural policy bigger farms can be already found before the reunification in 1990.

Table 1: Indicators of McDonaldization of Agriculture in Germany

	Farm size in ...						
	1949	1960	1970	1980	1991	2001	2007
Germany					16,923.1 541,376 (31.3)	17,066.0 410,956 (41.4)	16,933.9 348,288 (48.5)
Western Germany	12,837.5 1,341,028 (9.6)	1,154,882 (10.9)	928,306 (13.4)	694,467 (17.3)	526,417 (21.2)	382,569 (29.9)	11,345.9 320,081 (35.4)
Eastern Germany					14,959 (345.7)	28,387 (197.2)	28,207 (197.2)

Note: Absolute number of farms; average farm size in ha in parentheses; only farms greater than 2 ha considered; for Germany and Western Germany 1949 as well as 2007 the first number gives the acreage on 1,000 ha for farms greater than 2 ha; data provided by the Federal Ministry of Food, Agriculture and Consumer Protection (BMELV)

Moreover, according to Knight it is possible to identify the four principles of McDonaldization “efficiency”, “calculability”, “predictability”, and “control” in modern industrial agriculture. (1) With respect to efficiency, one can notice specialization mainly in one cash crop, monoculture farming, and the use of chemical inputs such as fertilizers, pesticides as well as the development of biotechnology. Additionally, an overall simplification of products such as few varieties of lettuce or apples can be observed. (2) Agricultural technology has increased productivity, leading to a higher degree of calculability, that is, more precise measurement of time, products, and processes. (3) Predictability can be based on the fact that industrial farms mostly use the same practices and growing methods,

and that consumer products often have the same look and taste. (4) In terms of control, one might think of vast irrigation systems in agriculture, the manipulation of genes, and of the fact that without certification consumers often cannot distinguish products.

Next to the advantages of McDonaldization in the domain of agriculture, clearly there are also many disadvantages or irrationalities. For example, industrial agriculture is a pollution-generating industry due to the use of chemicals which can bring about negative effects such as groundwater contamination, health problems etc. Agriculture is a water-intensive industry which may lead – like in the USA – to conflicts between farmers and residents. Moreover, decreasing biodiversity due to agriculture is a major problem. Other irrationalities are the overabundance of food in western societies and the general belief that large farms are more efficient than small farms, which is empirically questionable. According to the OECD (2008) in Germany especially water pollution (e.g., due to pesticides) and biodiversity (e.g., due to certain farm chemical use practices) are present key “agri-environmental challenges.”

Countertrends to the McDonaldization of Agriculture

Just like in other domains of social life, there is also countertrends to McDonaldization of agriculture, namely and primarily the so-called organic movement. Organic food is produced without the use of most conventional pesticides, synthetic fertilizers, and biotechnology. Organic-food production includes government-approved certifications of both production practices and products. There is a steady increase in organic food sales in Germany (as well as the USA). But the organic movement is more than an agriculture production system. It involves shared values such as animal welfare, social justice, environmental health, and localism (Macilwain 2004). In Germany in 2005 13,700 organic farms existed with a total of 784,000 ha which is a share of 3.5% of the total number of farms and 4.6% of the total agricultural area (Statistisches Bundesamt 2006). Compared to figures in 1999 this gives, for example, a growth rate of 43% with respect to organic farms (9,600 farms in 1999). The average farm size in 2005 was 57 ha (with a value of 182 ha for the Neue Länder und 37 ha for the Alte Länder; note that compared to Table 1 these numbers are also based on farm sizes below 2 ha).

Sociologists could doubt whether one should see developments in organic food production and consumption as a social movement (cf. Opp 2009 for a comprehensive overview on theories and empirical findings). According to McAdam and Snow (1997, p. xviii) social

movements, covering many approaches, can be defined as “a collectivity acting with some degree of organization and continuity outside of institutional channels for the purpose of promoting or resisting change in the group, society, or world order of which it is part.” This implies “some extrainstitutional collective action, or at least a mixture of extrainstitutional (protesting in the streets) and institutional (political lobbying) activity.” Clearly, there are joint protests such as demonstrations in the streets, non-governmental organizations, and political parties (e.g., the Green Party in Germany) which represent a wide variety between extrainstitutional and highly institutionalized activities in favor of organic food production and consumption in Germany. Furthermore, in general the German environmental movement has a considerable strong organizational basis and contrary to expectations neither a centralization nor de-radicalization (i.e., an overall decline) could be observed (Rucht and Roose 2001).

However, for example, with respect to biotechnology and genetic engineering in particular some authors argue that there exist no clear-cut social movement against it, that is, a collectivity that can be classified as a social movement with an own identity and mobilization of noteworthy extrainstitutional activity (e.g., Gill 2008). Furthermore, these technologies are not rejected in general by the public but in certain domains such as agriculture (see Gaskell 2000 for an empirical validation for Germany and other European countries). Nevertheless, with regard to biotechnology and genetic engineering, among other things, the following main topics on the part of opponents can be identified: risks for humans and the environment, intervention into Creation, preservation of nature as a *Gegenwelt* without genetic engineering. These motives and topics go along with positive attitudes toward anti-commercialization, anti-capitalism, and anti-globalization (Gill 2008).

Irrespective of theoretical perspectives, countertrends to McDonaldization of agriculture need a social basis on both the production and the consumption side. In this respect some authors argue that the development of organic farming will have the same characteristics like conventional agriculture (the so-called conventionalization hypothesis). Buck et al. (1997: 16) note for Northern California: “While in the past conventional growers viewed organic agriculture as economically not viable, they cannot help but notice the recent emergence of new market opportunities and shifts in consumer concerns. Attracted by current high rates of growth, which are expected to explode when the pending national standards are implemented, conventional agribusiness capital has been experimenting with different ways to enter the

organic sector; these include acquiring organic operations, converting their own conventional operations, or adding new product lines.” The conventionalization hypothesis is much debated. For example, Best (2008) could show empirically for three German regions that there are trends towards conventionalization of organic farming (e.g., towards large and specialized farms), but also that the majority of farmers “share the values of the organic movement” (p. 103). In another article Best (2009) demonstrates that next to operational aspects (e.g., the harmfulness of chemical substances), which are mainly important, environmental concern has a moderate influence on the decision to adopt organic farming. These results indicate that at this point in time in Germany on the production side much of organic agriculture is driven by pro-environmental attitudes. This in turn can be interpreted as an indication of a countertrend to McDonaldization in agriculture.

On the consumption side the following questions emerge: Who supports processes against rationalization in modern industrial agriculture (e.g., refuse to buy GMF)? What constitutes the social basis of consumption patterns not in line with McDonaldization of agriculture? From research on pro-environmental attitudes and behavior (e.g., Greenbaum 1995; Dietz et al. 1998) and environmental activism (e.g., Muller and Opp 1986; Lubell 2002) several explanatory factors come to mind: sociodemographic variables (gender, age, education etc.), income (regarding consumption decisions), environmental concern, social norms, aspects of collective action (e.g., the perceived personal influence on outcomes of collective action), and perceptions of environmental risks. Most of these factors will be considered in our empirical analyses in the following sections.

Data and Variables

The empirical analyses are based on data of the survey “Environmental Awareness in Germany 2006” (conducted by Udo Kuckartz). This is a representative survey of the German population conducted every two years since 1996 (cross-section data). The sampling population comprises of German citizens who are over 17 years. The data is based on 2,034 face-to-face interviews (1,650 in the western part of Germany and 384 in the eastern part).³ Table 2 gives an overview on the dependent and independent variables which will be used to determine the social basis of rebelling against McDonaldization. The data were weighted for descriptive analyses. The weighting factor considers characteristics such as gender and the age distribution of the population. This procedure is done in order to obtain representativity.

³ For more information about the survey, see <http://www.umweltbewusstsein.de>.

The multivariate analyses in the next section are based on non-weighted data, since it is controversial whether weighting gives more valid results in multivariate models (Winship and Radbill 1994).⁴

We use four dependent variables which can be interpreted as proxies for countertrends to or rebelling against the McDonaldization of agriculture: (1) the willingness to spend more money for fair-trade products in order to support small farmers in developing countries, (2) the non-willingness to buy genetically modified food (GMF), (3) the frequency of organic-food consumption, and (4) the frequency of boycott behavior concerning environmental harmful products. All variables were measured on four-point scales. Two variables consist of behavioral intentions, that is, the willingness to buy fair trade products and the non-willingness to buy GMF, and two variables comprise self-reported behavior, that is, the frequency of organic-food consumption and boycott behavior. Note that answers to questions concerning these four variables could be biased by social desirability. Taking this into account we use two dependent variables per behavioral item. The first variable per behavioral item uses information about the whole range of the response scale; the second one is binary coded and has a value of “1” if the respondent has the highest value on the four-point scale and a value of “0” otherwise.

The mean values of the first variables (full range) per behavioral item in Table 2 reveal the following order: non-willingness to buy GMF (3.06), followed by the willingness to buy fair-trade products (2.79), the frequency of boycott-behavior (2.58), and the frequency of organic-food consumption (2.36). With respect to the more restricted measure, that is, the binary coded variables, it can be observed that the highest proportion of people is not at all willing to buy GMF (40%), followed by the proportion of those who state that they always boycott products (24%), are very willing to buy fair-trade products (20%), and always buy organic food (8%). Overall, there seems to be a trend that behavioral intentions obtain higher values than self-reported behavior.

⁴ Furthermore, all results presented in the next section were also estimated using the weighted data; there are no remarkable differences.

Table 2: Summary of dependent and independent variables

Variable	Description (inter alia question wording)	N	Min	Max	Mean	Std. Dev
Fair trade	“To what extent are you personally willing to spend more money for fair-trade products from developing countries (e.g. coffee, tee etc.), i.e. products with fair prices for small producers?” (1= not willing, 2 = rather not willing, 3 = rather willing, 4 = very wiling)	2021	1	4	2.79	0.86
Fair trade (binary coded)	1 = very willing; 0=not willing, rather not willing, rather willing	2021	0	1	0.20	0.40
GMF	“Would you buy genetically modified food?” (1=yes, 2= maybe, 3= rather no, 4=not at all)	2028	1	4	3.06	0.93
GMF (binary coded)	1=not al all; 0=yes, maybe, rather no	2028	0	1	0.40	0.49
Organic food	“I buy food with the ‘Bio-Siegel’ or another organic food certificate.” (1=never, 2= infrequently, 3=frequently, 4=always)	1988	1	4	2.36	0.81
Organic food (binary coded)	1=always; 0=never, infrequently, frequently	1988	0	1	0.08	0.27
Boycott of products	“I boycott products of companies that are verifiably harmful to the environment?” (1=never, 2= infrequently, 3=frequently, 4=always)	1766	1	4	2.58	1.04
Boycott of products (binary coded)	1=always; 0=never, infrequently, or frequently	1766	0	1	0.24	0.43
Gender (1=female)	1=female, 0=male	2034	0	1	0.52	0.50
Age in years		2034	18	91	48.90	17.24
Education in years	7 = without degree, 8 = degree from secondary school after 8 years (German: Volks-/Hauptschulabschluss), 10 = degree from secondary school after 10 years (German: mittlere Reife/Realschulabschluss), 12 = degree from secondary school after 12 years qualifying for university of applied sciences admission or matriculation (German: Fachhochschulreife), 13 = degree from secondary school after 13 years qualifying for university admission or matriculation (German: Abitur), 16 = university degree of applied sciences, 18 = university degree	2027	7	18	11.16	3.31
Income (log) (equivalized disposable income)	Missing values were imputed by applying an income regression. The equivalized disposable income was calculated by dividing the household net income by the square root of the number of all household members.	2034	141	7500	1631.98	726.95
Income missing	1=income missing, 0=income non-missing (before imputation of missing values)	2034	0	1	0.40	0.49

Children in household	1 = at least one child aged 17 or below live in the household, 0 = no children in the household	2034	0	1	0.30	0.46
Religiousness (1=yes)	“If a person who is close to you would say that you are a religious persons, would this person be right or wrong?” (1=yes, she would be right, 0=non, she would be wrong)	1812	0	1	0.44	0.50
East-Germany	1=respondent lives in East-Germany, 0=respondent lives in West-Germany	2034	0	1	0.20	0.40
Environmental concern	An additive index based on five items from a scale proposed by Diekmann and Preisendörfer (2003).	2022	8	25	17.76	3.27
Env. group member	“Are you a member of a group or organization which is engaged in the preservation and protection of the environment and nature?” (1=yes, 0=no)	2030	0	1	0.09	0.28
Social norm	“What do you think: Are or would your friends and relatives be in favor if you are or would be an active member of an environmental group?” (1 = find it very bad, 5 = find it very good).	2009	1	5	3.76	0.78
Perceived influence	“By our consumption behavior we the citizens can contribute to environmental protection.” (1 = totally disagree, 5 = totally agree)	2029	1	5	3.86	0.88
Subjective social status	“In our society exist population groups who are at the top and groups who are at the bottom. We have a scale which runs from ‘at the top’ to ‘at the bottom’. Where would you place yourself on this scale?” (recoded such as 1 = ‘at the bottom’, 10 = ‘at the top’)	2026	1	10	6.12	1.57
Urbanity (place of residence)	1 = below 2,000 inhabitants, 2 = between 2,000 and 5,000, 3 = between 5,000 and 20,000, 4 = between 20,000 and 50,000, 5 = between 50,000 and 100,000, 6 = between 100,000 and 500,000, 7 = more than 500,000	2034	1	7	5.10	2.01
Urbanity (place raised)	1 = village, 2 = small town (below 20,000 inhabitants), 3 = mid-sized town (approx. between 20,000 and 100,000 inhabitants), 4 = large city (more than 100,000 inhabitants)	2025	1	4	2.56	1.16
Risk of GMF	“From your opinion, how dangerous is the usage of genetically modified organism (such as genetically modified corn) in food for you and your family?” (1 = not at all dangerous, 2 = hardly dangerous, 3 = somewhat dangerous, 4 = very dangerous, 5 = extremely dangerous)	2025	1	5	3.23	1.19
Information about food	“How well do you feel informed about the health impact and environmental impact of food and other products?” (reversed school grades: 1 = unsatisfactory, 2 = insufficiently, 3 = sufficiently, 4 = satisfactory, 5 = good, 6 = very good)	2029	1	6	3.34	1.23

The independent variables include sociodemographic variables such as gender, age, education, and whether children live in the household. Several studies have shown that woman, younger people and those with higher education have a higher environmental concern and a higher likelihood to act environmental friendly (e.g., Greenbaum 1995; Dietz et al. 1998; Zelezny et al. 2000). The degree of urbanity with respect to the place mainly raised and the place of residence are also considered as independent variables. There is mixed evidence with regard to positive effects of urbanism on environmental concern (Freudenburg 1991 for a discussion, the effects seem to be context specific). Further, self reported religiosity might be an explanatory determinant. Religiosity can include beliefs supporting natural protection, although the positive relationship seems to depend on the explanandum (e.g., Sherkat and Ellison 2007 for a discussion of divergent findings; Biel and Nilsson 2005 for a positive correlation with perceived threats of genetically modified crops). Thus, religious people might also be more inclined to hold attitudes and to support behavior not in line with the McDonaldization of agriculture.

From an economic perspective, income is the most important variable for consumption decisions. People with higher income are able to consume more goods, including environmental friendly products, than people with lower income. Income should have a positive effect on willingness to pay for fair-trade products and organic food. It cannot be expected that income significantly affects the non-willingness to buy GMF and boycott behavior.⁵ We use the equivalized disposable income for the multivariate analyses. Since 40% of respondents refused to answer the income questions, our analyses are based on an imputed income variable and we additionally control whether the respondent has a missing value on the original variable or not. While income is an objective status dimension, respondents were also asked about their subjective social status. On a scale between “0” meaning “at the bottom of German society” and “10” meaning “at the top of German society”, the majority of people locate themselves above the midpoint of the scale (the mean value is 6.12 and the median value 6).

Environmental concern and personal engagement for environmental protection should positively correlate with behavioral countertrends to McDonaldization. The former was measured using five items where four items were proposed by Diekmann and Preisendörfer

⁵ A positive effect could be assumed if non-genetically modified food is more expensive than GMF and a negative effect if environmental harmful products are on average cheaper than non-harmful products.

(2003). These items aim at affective and cognitive aspects of general environmental concern.⁶ Pro-environmental engagement was obtained by asking whether the respondent is a member of a group or organization which is engaged in the preservation and protection of the environment and nature. This was approved by 9% of the respondents.

From a sociological and social-psychological point of view, social norms are a main predictor of behavior (Hechter & Opp, 2001) and behavioral intentions (Ajzen 1991). The survey contains a question about positive or negative sanctioning by friend and relatives when respondents are or would be a member of an environmental group. The mean of this variable shows that such engagement is overwhelmingly positively sanctioned (mean value of 3.76 and median value of 4 on a scale where a value of 1 means that friends and relatives find a group membership very bad and a value of 5 that they find it very good). The literature on collective action and environmental activism shows that the perceived efficacy of personal engagement might influence environmental activism (e.g., Muller and Opp 1986; Lubell 2002, Lubell et al. 2006). In this respect we consider a variable which measures how much people are convinced that they can considerably contribute to environmental protection based on their consumption behavior. The majority has a positive perception concerning citizens' influence (mean value of 3.86 and median value of 4 on a scale from 1 to 5 with higher values indicating a higher perceived influence).

We rely on two variables to account for the perceived risk regarding food products and the awareness of health and environmental impacts of food products. The first variable measures, from the respondent's point of view, how dangerous the usage of genetically modified organism in food is for her and her family. This can also be broadly interpreted as a proxy for the perception of general risks concerning food. A clear majority of respondents is rather aware of risks (mean value of 3.23 and median value of 3 on a scale from 1 = 'not at all dangerous' to 5 = 'extremely dangerous'). Gaskell et al. (2000) show that, similar to our figures for Germany, in most European countries people hold negative attitudes toward GMF and that this negative attitude correlates positively with the intention to buy GMF. Finally, also a majority of people feels themselves sufficiently informed about the health impact and

⁶ The following items were used: "If we continue our current style of living, we are approaching an environmental catastrophe" (affective), "I am afraid when I think about environmental conditions for future generations" (affective), "There are limits of economic growth which the industrialized world has already reached or will reach very soon" (cognitive), "In my opinion, environmental problems are exaggerated by proponents of the environmental movement" (cognitive), "Science and technology will solve our environmental problems so that we do not have to change our style of living" (cognitive).

environmental impact of food and other products (mean value of 3.34 and a median value of 4 on a scale of 1 = ‘unsatisfactorily informed’ to 6 = ‘very well informed’).

Results and Discussion

The multivariate analyses are based on ordinary least squares (OLS) regressions and binary probit models. Results are given in Table 3. With regard to the socio-demographic variables it can be seen that women have a higher non-willingness to buy GMF than men and that they purchase organic food more often. This is true for the OLS estimates including differences on the whole range of the dependent variable and for the probit estimates which focus on the highest category on the scale. Age positively and significantly affects the propensity to disapprove GMF and to purchase organic food (OLS regressions) as well as to boycott products of companies that are harmful to the environment (OLS and probit models). This is not in line with other studies that predict a higher propensity of pro-environmental behavior for younger people (cf. Dietz et al. 1998 for a short review). Higher educated people have a significantly higher willingness to spend money for fair-trade products in order to support small farmers in developing countries (OLS and probit models), purchase significantly more often organic food (OLS), and boycott significantly more often products (OLS). While religiosity positively and significantly influences the non-willingness to purchase GMF and the purchase of organic food with respect to both the whole range (OLS) and the highest category on the scale (probit models), it only significantly influences boycott behavior with respect to the whole scale (OLS).

As was expected income has a positive and significant effect on the willingness to buy fair-trade products and the frequency of organic-food consumption (OLS regressions). However, the positive effects are not significant for the restricted group of those who are very willing to buy fair-trade products and those who always buy organic food. The frequency of boycott behavior (OLS) is significantly negatively influenced by income.⁷ The significant effects of the subjective social status are partly in line with the effects of the objective status dimension “income.” The higher the perceived social status the more people are willing to spend for fair-trade products (both OLS and probit models) and the more frequently they purchase organic

⁷ The multivariate analyses also show that respondents with a missing value on the original income variable (i.e. the variable before imputation) have a significant lower willingness to buy fair-trade products (OLS), a significant higher non-willingness to purchase GMF (OLS), a significant higher frequency of organic-food consumption (OLS and probit model) and boycott behavior (OLS).

food (OLS). Contrary to the positive effect of income, people with a higher subjective social status have a higher propensity to boycott environmental harmful products (OLS).

There are hardly behavioral differences between people in eastern and western Germany as well as rural and urban areas. In most cases, people living in the eastern part are less likely to state and show behavior in line with rebelling against processes of McDonaldization. However, these differences are only significant for the willingness to buy fair-trade products. The higher the degree of urbanity of the place of residence (significant for OLS and probit model), the more likely people are willing to purchase fair-trade products. Additionally, people who were raised in urban areas state that they boycott less often products from companies that are harmful to the environment.

Strong predictors of behavior against processes of McDonaldization are environmental concern, environmental group membership, the social norm, and the perceived influence on environmental protection. Except in the probit model concerning organic-food consumption, environmental concern has a positive and significant effect in all OLS and probit models hence, on all dependent variables. Clearly, this confirms other studies on pro-environmental behavior. The same holds true for environmental group membership except for the OLS regression concerning the non-willingness to purchase GMF (the effect is positive, but not significant). The more people are positively sanctioned by their friends and relatives for an engagement in environmental protection the more likely they are willing to purchase fair-trade products to support small producers and to purchase organic food (significant in both OLS and probit models). Further, the social norm has a significantly positive effect on boycott behavior. The perceived personal influence on environmental protection has a non-significant effect on the non-willingness to purchase GMF, but positive and significant effects on the willingness to purchase fair-trade products, the frequency of organic-food consumption, and the frequency of boycott behavior. This is true for both the weaker measure based on information about the whole response scale of the dependent variables (OLS) and the stronger measure restricted to the highest category of the variables (probit models). The perceived personal efficacy (or citizens' efficacy) strongly and positively affects behavioral intentions and behavior against processes of McDonaldization.

Table 3: Multivariate results

Variable	I am willing to pay for...		I would not purchase...		I purchase...		I boycott...	
	fair trade prod. (OLS)	fair trade prod. (1=very)	GMF (OLS)	GMF (1=not at all)	organic food (OLS)	organic food (1=always)	products (OLS)	products (1=always)
Gender (1=female)	0.01 (0.04)	0.11 (0.08)	0.15* (0.04)	0.30* (0.07)	0.13* (0.04)	0.39* (0.10)	0.03 (0.05)	0.03 (0.08)
Age	-0.0002 (0.001)	0.003 (0.003)	0.002 ⁺ (0.001)	0.002 (0.002)	0.004* (0.001)	0.004 (0.003)	0.01* (0.002)	0.01* (0.003)
Education	0.03* (0.01)	0.03* (0.01)	-0.009 (0.01)	0.01 (0.01)	0.01* (0.01)	-0.02 (0.02)	0.02 ⁺ (0.01)	0.003 (0.01)
Religious (1=yes)	0.06 (0.04)	0.10 (0.08)	0.10* (0.04)	0.14 ⁺ (0.07)	0.11* (0.04)	0.19 ⁺ (0.10)	0.09 ⁺ (0.05)	0.09 (0.08)
Income (log)	0.11* (0.05)	0.07 (0.10)	-0.06 (0.05)	-0.14 (0.09)	0.10* (0.05)	0.16 (0.14)	-0.13* (0.06)	-0.05 (0.10)
Subjective social status	0.05* (0.01)	0.10* (0.03)	-0.01 (0.01)	0.02 (0.02)	0.04* (0.01)	0.05 (0.04)	0.05* (0.02)	0.02 (0.03)
Eastern-Germany (1=yes)	-0.14* (0.05)	-0.21 ⁺ (0.11)	-0.04 (0.05)	-0.14 (0.09)	-0.05 (0.05)	0.20 (0.14)	-0.11 (0.07)	-0.03 (0.11)
Urbanity (place of residence)	0.02* (0.01)	0.06* (0.02)	-0.01 (0.01)	-0.02 (0.02)	0.002 (0.01)	0.01 (0.03)	0.02 (0.01)	0.01 (0.02)
Urbanity (place raised)	0.01 (0.02)	0.02 (0.04)	-0.004 (0.02)	-0.01 (0.03)	-0.01 (0.02)	0.01 (0.05)	-0.05* (0.02)	-0.05 (0.04)
Environmental concern	0.04* (0.01)	0.05* (0.01)	0.05* (0.01)	0.07* (0.01)	0.03* (0.01)	0.03 (0.02)	0.04* (0.01)	0.04* (0.01)
Env. group member	0.21* (0.07)	0.47* (0.11)	0.08 (0.07)	0.24* (0.12)	0.22* (0.06)	0.30* (0.14)	0.33* (0.08)	0.37* (0.12)
Social norm	0.16* (0.03)	0.29* (0.05)	0.03 (0.03)	-0.01 (0.05)	0.14* (0.03)	0.27* (0.07)	0.10* (0.03)	0.04 (0.05)
Perceived influence	0.14* (0.02)	0.21* (0.04)	0.001 (0.02)	0.003 (0.04)	0.13* (0.02)	0.26* (0.06)	0.22* (0.03)	0.26* (0.05)
Risk of GMF	0.04* (0.02)	0.03 (0.03)	0.29* (0.02)	0.40* (0.03)	0.10* (0.02)	0.17* (0.05)	0.12* (0.02)	0.12* (0.03)
Information about food	0.03 ⁺ (0.02)	0.04 (0.03)	-0.04* (0.02)	-0.05 ⁺ (0.03)	0.02 (0.02)	0.07 ⁺ (0.04)	0.001 (0.02)	0.003 (0.03)
Adj. R ²	0.199		0.264		0.191		0.182	
Pseudo-R ² (McFadden)	0.147		0.176		0.151		0.095	
N	1,741	1,741	1,749	1,749	1,716	1,716	1,526	1,526

Note: * significant at 5%-level, ⁺ significant at 10%-level. Standard errors in parentheses. GMF means genetically modified food. All models include 'children in household' and a dummy for missing of income as further control variables. First models per behavioral category are OLS-regressions, second models Probit models.

Also the perceived risk of GMF has stable positive and significant effects on the dependent variables, with one exception concerning the purchase of fair-trade products (whether people are very willing to pay for these products). Not surprisingly, the risk perception especially affects the dependent variables directly connected to food consumption, that is, the non-willingness to buy GMF and the purchase of organic food. Interestingly, the better people are informed from their point of view about the health impact and environmental impact of food and other products the lower their non-willingness to purchase GMF. It might be that subjectively better informed people hold rather positive images of food biotechnology corresponding to knowledge about GMF or perceive more benefits of GMF (see Gaskell et al. 2000, 2004 for large-scale empirical analyses and evidence on the importance of such images and knowledge for people's perceptions of and attitudes towards GMF in Europe and the U.S.). However, better-informed people are more likely to be in the group of those who always purchase organic food, and they have a significantly higher willingness to purchase fair trade products (OLS).

The results indicate a considerable difference between significant determinants of the general propensity to support countertrends to McDonaldization on the one hand and significant determinants of belonging to the group with the highest propensity of rebelling against the McDonaldization on the other hand. For example, the subjective social status of people positively and significantly affects the frequency of organic-food consumption and the frequency of boycott behavior in general, but does not significantly influences the highest propensity of such behavior in particular, that is, the likelihood that organic food is always consumed and harmful products are always boycotted. Most effects also depend on the specific behavioral intention or behavior. Whereas woman generally purchase organic food more frequently than men and have a higher non-willingness to purchase GMF, there are no gender-differences with regard to the willingness to purchase fair-trade products and to boycott products. It is suggested in the literature that women have a stronger ecological value orientation (e.g., Stern, Dietz & Kalof 1993) and that this might be due to socialization processes and specific gender roles (e.g., Zelezny, Chua & Aldrich 2000 for a short overview). However, our results show primarily significant differences with respect to food consumption (GMF and organic food), but not the purchase of fair-trade products or boycott behavior. This might be explained by a (gendered) division of labor in households, if, on average woman are more often responsible for food consumption and preparation than men (e.g., Brines 1994 for a theoretical foundation). Then, a higher responsibility might positively

correlate with awareness of food quality. Also religiosity positively and significantly influences the non-willingness of GMF consumption and the frequency of organic-food consumption (for both the general propensity and for belonging to the specific group of people with the highest propensity). But, religiosity does not affect the purchase of fair-trade products.

While some of the following effects should not be interpreted in terms of causality, but rather in terms of correlations, it is suggested that people with high environmental concern, members of an environmental group, people who perceive a strong personal influence on environmental protection, and those who perceive high health and environmental risks of GMF constitute the social basis of countertrends to the McDonaldization of agriculture. Note that some of these determinants are also context specific. The perceived personal efficacy does affect all behaviors (or behavioral intentions) except the non-willingness to buy GMF; environmental concern is not a significant predictor of the highest propensity of organic-food consumption (people who always purchase organic food), and the perceived risks of GMF do not significantly influence the likelihood that people are very willing to pay for fair-trade products (however, the latter is not a straightforward expectation). Nonetheless, overall these determinants are, for example, more important for consumption decisions (regarding fair-trade products and organic food) than people's income or their subjective social status.

Concluding Remarks

Modern agriculture can be characterized by Ritzer's theory of McDonaldization concerning both production and consumption practices. We have discussed countertrends to the McDonaldization of agriculture, that is, trends against rationalization processes. With a focus on Germany, it has been shown empirically that, perhaps not so surprisingly, a higher environmental concern, environmental-group membership, a perceived personal influence on environmental protection, and perceived health and environmental risks related to food products primarily support behavior not in line with or against McDonaldization. In this respect it is necessary to differentiate between a measurement of behavioral intentions or self-reported behavior not restricted to certain categories of the underlying variable (as typically employed in empirical research) and a measurement that is restricted to the highest category of the underlying variable. Since answers to questions concerning pro-environmental behavior may be biased by social desirability, it is useful to separate people with the highest propensity of the behavior in question from people with a lower propensity. In fact, our empirical

findings indicate, for example, that income and the subjective social status positively influences the frequency of organic-food consumption in general, but not the likelihood that organic food is exclusively purchased in particular. A further finding is that effects of behavioral determinants are context specific. Gender has effects on food consumption (GMF and organic food), but not on the willingness to purchase fair-trade products or on the frequency of boycott behavior. The social norm affects all behaviors at least at the general level, except the non-willingness to purchase GMF. Further, somewhat surprisingly we found that the better people feel informed about the health impact and environmental impact of food products the more likely they are willing to purchase GMF.

Clearly, future research would profit from refined measurements of individuals' consumption behavior and environmental activism. Furthermore, some of the explanatory factors considered in the present study may have direct as well as indirect effects on behavior. We have only analyzed the direct effects. Although, especially organic-food consumption can be seen as a countertrend to or even more as a social movement against the McDonaldization of agriculture, it cannot be ruled out that organic-food production and consumption itself will be part of processes of McDonaldization (e.g., large organic food farms and supermarkets). Then rationalization with its well-known advantages and disadvantages will also characterize organic-food production and consumption patterns, and the question remains whether shared values such as social justice and localism will still affect production and consumption patterns. Finally, on a more theoretical level McDonaldization should not be called a theory. Although in general it is possible to derive testable hypotheses, for example, concerning the homogenization of products over time, there is no clear possibility to falsify the theory.

Summarizing, Ritzer's concept of McDonaldization can be seen as an insightful and helpful description of developments in modern society such as in the agricultural sector. These insights also include countertrends to such developments. Social scientists might use McDonaldization as a heuristic which stipulates interesting research questions. In addition, empirical research might profit from a direct application or operationalization of the dimensions of McDonaldization in surveys (e.g., by asking respondents directly about the perceived efficiency or predictability of consumption processes).

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