

THE ADDED VALUE OF SUSTAINABILITY MOTIVATIONS IN UNDERSTANDING SUSTAINABLE FOOD CHOICES

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Abstract: Understanding consumer food choices is crucial to stimulate sustainable food consumption. Food choice motives are shown to be relevant in understanding consumer food choices. However, there is a focus on product motives, such as price and taste, whereas process motives (i.e. environmental welfare) are understudied. The current study aims to add to the existing literature by investigating the added value of sustainable process motives (environmental welfare, animal welfare and social justice) above product motives. Two on-line surveys of representative Dutch samples tested whether process motives increase the explained variance of sustainable consumption. The results indicate that sustainable process motives are of added value above product motives in the understanding of consumer food choices. In addition, product categories differ in the sustainable process motives that are most useful in explaining sustainable purchases in that category (Study 1), and different types of sustainable products (organic versus fair trade) differ in the sustainable process motives that are most useful in explaining these purchases (Study 2). In conclusion, this paper shows that understanding of sustainable consumption can be improved by considering sustainable process motives above product motives. Thereby, it is important to take the sustainability dimension (e.g., social justice versus environmental welfare) and the product category (e.g., meat versus fruit) into account.

Keywords: Sustainability, food, motivations, organic, fair trade

1. Introduction

1.1 Sustainable consumption

Sustainable consumption has become a vivid and respected field of research in recent decades. This scholarly interest is reflected in special issues in various academic journals (e.g., *Journal of Industrial Ecology*; *Journal of Consumer Behaviour*; *International Journal of Consumer Studies*), edited volumes (e.g., Cohen & Murphy, 2001; Jackson, 2006; Kennedy et al., 2015; Reisch & Thøgersen, 2015), and a flood of books and scientific papers on the topic. Research on sustainable consumption has several merits. To begin with, it presents a more nuanced idea of consumption than simply as a “bad” thing, that is, primarily associated with its Latin root of “*consumere*” which means that things are being used or destroyed – quite the opposite of sustaining something as a matter of fact.

Secondly, sustainable consumption contains a broader picture of consumers than the image of the purely rational and narrowly self-interested consumer only interested in cheap and convenient products regardless of the production processes. Previous studies reveal that consumers are not only rational decision makers, but also aim to feel good about themselves and their choices (Adreoni, 1990; Onwezen, Antonides & Bartels, 2013). Consumers can, for example, take sustainable production processes, like environmental

welfare, social justice and animal welfare into account during purchases (e.g., Lindeman & Väänänen, 2000; Vermeir & Verbeke, 2006). Consumers differ in how they weigh these pro-self versus sustainable values (Onwezen & Van der Weele, 2016; Onwezen & Bartels, 2011; Verain et al., 2012), but there are also differences *within* individuals, for example shown in the debates about consumers and citizens. The prototypical consumer is first and foremost price-conscious and product-oriented, while the prototypical citizen takes the consequences of his or her consumption choices on the social and physical environment into account (e.g., Schröder & McEachern, 2004). Based on this conceptual depiction of a split personality, consumers and citizens are held dichotomous. However, also here more nuanced ideas have been developed in the course of time in which a clear distinction between people as consumers and citizens is questioned or denied (Korthals, 2004; Schudson, 2007; Trentmann, 2007; Warde 2015). Taken together, there is more to consumption decisions than price tags and quantity. Consumers also take sustainable processes into account when purchasing products.

A third merit of the field of sustainable consumption is that it counterweights the focus on technological progress and innovation as the main solution to sustainable development. Although it is widely believed that technology will solve sustainability problems, various voices are raised to advocate that consumer behaviour should also be part of the

sustainability equation (Brinzan et al., 2012; Tukker & Jansen, 2006). In other words, the issue of sustainability has a clear and crucial consumption side. Therefore, consumers are not only part of the problem of unsustainability, they are also part of the solution to move towards a more sustainable future (see also some of our previous studies: De Bakker & Dagevos, 2012; Dagevos & Voordouw, 2013; Onwezen et al., 2014a; 2014b; Verain et al., 2012; Verain et al., 2015).

As consumer choices are crucial in achieving sustainability gains, sustainable food consumption has attracted the attention of a growing number of researchers (e.g., for an overview see Reisch et al., 2013). The production and consumption of food is connected with huge and acute sustainability problems ranging from animal welfare issues, to greenhouse gas emissions, land depletion, and deterioration of biodiversity, to child labour and poor working conditions. This enumeration shows the many dimensions included within the umbrella concept of sustainable food. In this paper, we define sustainable food consumption as food consumption where environmental welfare, animal welfare and social justice are respected (Aschemann-Witzel, 2015; Van Dam & van Trijp, 2011). If we want to stimulate consumers to make sustainable food choices, it is important to better understand consumers' food choice motives. The current study, therefore, aims to further understand consumer decision making for (sustainable) food consumption.

1.2 Food choice motives

Food choice motives (e.g., Steptoe et al., 1995) are often used to explore food choices, and show to be relevant in understanding consumer food choices (Sautron et al., 2015). Broadly, and based on Dagevos and Van Ophem (2013), two types of motives can be distinguished: product motives (pro-self motives) and process motives (pro-social motives). *Product motives* are related to the product and result in benefits for the self, such as the price, sensory characteristics or healthiness. *Process motives* relate to the production process and include motivations related to different dimensions of sustainability, such as environmental welfare, animal welfare and social justice. Product motives are much more researched in the literature, whereas process motives only receive attention recently (e.g., Lindeman & Väänänen, 2000; Sautron et al., 2015). Product motives, such as price and product appearance, are often used by consumers as arguments to not consume sustainable products (i.e., Aertsens et al., 2009). However, for understanding sustainable food consumption it is important to include process motives, because especially these motives refer to sustainability values. Previous studies underscore this reasoning, for example by showing that sustainable process motives are important determinants of sustainable consumption (e.g., Verain et al., 2015).

The food choice questionnaire (FCQ), developed by Steptoe and colleagues (1995), measures motives for food selection and includes the following motives: convenience, price, health, sensory appeal, weight control, natural content, mood, familiarity and ethical concern. The FCQ has been applied in numerous studies to explain consumer food choices,

for example for organic foods (Chen, 2007; Lockie et al., 2004), fruit and vegetables (Pollard et al., 2002), traditional foods (Pieniak et al., 2009) and functional foods (Ares & Gambaro, 2007). Those studies show that health, sensory appearance, price and convenience are the most important motives, whereas ethical concern is of less importance. In addition, the ethical concern dimension, which comprises process motives, shows to have a low reliability. The FCQ includes a very limited number of process motives. Therefore, Lindeman and Väänänen (2000) added ethical motives to the FCQ and distinguished an ecological (consisting of animal welfare and environmental protection), political and religion-related component. The study of Lindeman and Väänänen (2000) shows that individuals distinguish between ecological, political and religion-related motives. Of these motives ecological welfare is rated as the most important ethical motive for food choice. Several more recent studies also included additional process motives to better understand sustainable food behaviour (e.g., Sautron et al., 2015; Verain et al., 2016). Despite this scholarly attention for process motives, it remains unclear what their added value is in understanding sustainable food consumption. Therefore, the current study aims to add to the understanding of sustainable food consumption, by investigating the added value of sustainable process motivations above product motivations.

1.3 Three hypotheses

Traditionally, food consumption generally and sustainable food consumption specifically are explained by product motivations. However, sustainable consumption is associated with prosocial values. In line with contemporary consumer studies, we therefore propose that process motivations that include prosocial values, such as animal welfare, social justice and environmental welfare, are also of importance in understanding sustainable food consumption (e.g., Verain et al., 2016). Therefore, our first hypothesis is:

Hypothesis 1: Sustainable process motives are of added value above product motives in explaining sustainable food behaviour.

Two categories of sustainable food consumption can be distinguished (Verain et al., 2015): a change in consumption pattern, and a shift towards sustainably produced food products. Hypotheses 2 and 3 are devoted to each of both categories respectively.

The first category includes the shift of consumption patterns towards more sustainable diets. A large body of research is conducted on how to achieve that, and consensus is reached on the importance to shift diets towards a more plant-based diet and a less animal-based diet (e.g., Health Council of the Netherlands; 2011, Joffe & Robertson, 2001; Reisch et al., 2013; Van Dooren et al., 2014; Westhoek et al., 2014). Consumption of animal-based products, such as dairy, fish, and meat, should be decreased. This can be achieved by introducing vegetarian days or by consuming smaller portions

of animal-based products for example.

The shift to more sustainable consumption patterns reveals the relevance of different product categories. Previous studies show indications that different sustainable process motives (e.g., environmental welfare, animal welfare and social justice) have a distinct impact on different product categories (e.g., Onwezen et al., 2012). Consumer motivations can differ between product categories and between animal-based and plant-based products for example. In order to better understand sustainable consumption, these differences should be taken into account. For all product categories, it is likely that sustainable process motives play a role, but the sustainability dimension (environmental welfare, animal welfare and social justice) may differ between these product categories. Animal welfare and environmental welfare are likely to play a role for animal-based products, whereas environmental welfare and social justice are more likely to play a role for fruits and preserved products that have been imported from developing countries. Therefore, we hypothesise that:

Hypothesis 2: Purchase of sustainable animal-based products can best be explained by animal welfare and environmental welfare motives, whereas purchase of sustainable plant-based products can best be explained by environmental welfare and social justice.

A second strategy towards more sustainable food consumption is the purchase of products that have been produced in a sustainable way. Examples of such products are environmental friendly products, products that consider animal welfare or fair trade products (e.g., Logatcheva, 2015). It is likely that the purchase of these different types of sustainable products can best be explained by motivations for different dimensions of sustainability (environmental welfare, animal welfare and social justice). The added value of different types of sustainable process motives may differ between organic and fair trade product choices for example. For organic food choices, we know from literature that environmental welfare, animal welfare and social justice concerns are all important motives (Honkanen et al., 2006; Lockie et al., 2002; Magnusson et al., 2003). For fair trade, literature on the underlying sustainability motivations is unavailable, but fair trade includes both environmental benefits, as producers are encouraged to improve the environmental sustainability of their products, as well as social justice (Ozcaglar-Toulouse et al., 2006). Therefore, we hypothesise the following:

Hypothesis 3: Environmental welfare, animal welfare and social justice motives are associated with organic purchases and environmental and social justice motives are associated with fair trade purchases.

2. Study 1

Study 1 aims to test whether sustainable process motives increase the explained variance of sustainable consumption above the inclusion of product motives (*H1*). Organic food

purchases were used to study sustainable consumption, because the purchase of these products can be regarded as a sustainable act. We included animal-based (dairy and meat), plant-based (fruit and vegetables) and processed food (mixes and sauces; included to incorporate a full diet) to test hypothesis 2. We hypothesise that sustainable behaviour of animal-based products can best be explained by animal welfare and environmental welfare motives, whereas purchase of sustainable plant-based products can best be explained by environmental welfare and social justice (*H2*).

2.1. Method and Analyses

2.1.1 Participants

Data was collected through an online survey. Respondents were recruited by a market research agency in October 2014. The sample consisted of 1000 Dutch respondents and was nationally representative in terms of age, gender, and geographic distribution. The sample consisted of 49% males and has a mean age of 51.3 years ($SD = 15.1$).

2.1.2 Measures

The questionnaire included items on (a) food choice motives, (b) self-reported purchase of organic food in general and in specific product categories, (c) demographics and some other variables, since this questionnaire was part of a larger survey.

Food Choice Motives.

Respondents were asked to answer on a 10-point scale how important a range of motives are in their current food choice. The product-related motives that were included are: price, taste, health, convenience, ready to eat, appearance, weight maintenance, branded (A-brand), private label, familiar, safe, natural, portion size, pure (no or nearly no additives), traditional (craftsmanship), nearly no processing and quality. In addition, a range of sustainable process motives were included, namely animal friendly, organic, environmental friendly, country of origin, local and fair trade.

Self-reported organic purchases.

Respondents were asked to indicate which percentage of their total food purchases were organic, with answer categories 'I never buy organic food', 'less than 25% is organic', '25-49% is organic' and '50-90% is organic'. The same question is asked more specifically for meat, dairy, vegetables, fruit, and mixes and sauces.

2.1.3 Analyses

Hierarchical multiple regression analyses were performed to test whether adding sustainable process motives increases the explained variance in sustainable food behaviour. Organic purchase was the dependent variable and food choice motives were included as independent variables. We included all product motives in the first block and the sustainable process motives were included in the second block. Significance tests of the change in R square are used to test whether adding

sustainable process motives increases the explained variance. The analyses were performed for organic food choices in general and for organic food choices in specific product categories.

2.2 Results

2.2.1 Food choice motives.

Table 1 shows that the product motives explain 21.5% of the variance in self-reported organic purchases. The motives that are significantly associated with organic purchases are natural, pure, traditional and ready to eat (negative).

Adding the environmental welfare, animal welfare and social justice motives beyond the product motives significantly increases the explained variance, with 12.1% and the motives that are significantly associated with organic purchases are natural, pure, ready-to-eat (negative), organic, environmental friendly, country of origin (negative) and fair trade.

Table 1: Multiple regression analysis on organic food consumption

Food choice motives	beta	t	F(df1, df2); R ² /ΔR ²
Block 1 private label			
familiar	-.04	-1.12	
A-brand	-.04	-1.10	
portion size	-.02	-.61	
price	-.03	-.78	
health	-.01	-.21	
taste	.00	.03	
convenience	.00	-.08	
appearance	-.01	-.20	
natural	.25	5.16***	
weight control	.06	1.56	
safety	-.03	-.65	
pure	.18	3.77***	
handcrafted	.08	2.02*	
ready to eat	-.10	-2.82**	
low in additives	.03	.69	
promotion	-.05	-1.28	
quality	.02	.53	F(18,999)14.887; R ² = .215
Block 2 organic ¹	.43 ²	9.713***	
environmentally friendly	.10	1.988*	
country of origin	-.14	-3.551***	
regional	-.02	-.532	
animal friendly	.03	.691	
fair trade	.16	3.291**	F(24,999)20.558; ΔR ² = .121***

Note. The results show the unadjusted R². The beta coefficients of block 1 are the coefficients without Block 2 included.05; **p<.01; ***p<.001

Food choice motives for specific products

Table 2 shows the results of the same analyses (as described above) for the specific product categories. The results reveal that for all product categories including sustainable process motives increases the explained variance (HI is true for all included product categories).

The findings only partially confirm hypothesis 2. Dairy and meat purchases are both, as proposed, associated with environmental welfare motives (organic), and meat consumption also shows an association with animal friendliness as proposed. However, dairy purchases are not associated with animal friendliness, and meat purchases show an unexpected association with social justice motives.

The findings regarding plant-based products also only partially confirm hypothesis 2. Fruit and vegetable purchases are both associated with environmental welfare motives, and fruit purchases are also associated with social justice motives. However, vegetables are not significantly associated with social justice motives.

Table 1: Multiple regression analysis on organic food consumption

	Dairy ¹	Meat ²	Fruit ³	Vegetables ³	Mixes and sauces ¹
organic	.397***	.441***	.386***	.400***	.237***
environmentally friendly	.064	.031	.014	.023	.033
country of origin	-.086	-.130**	-0.08	-.057	.028
regional	.062	.014	.043	.011	.023
animal friendly	.046	.126**	.011	.036	.014
fair trade	.047	.101*	.133*	.078	.072
F(df1,df2)	(24,924) 12.485***;	(24,942) 15.287***;	(24,908) 11.914***;	(24,946) 14.417***;	F(24,672) 4.341***;
p;ΔR ²	ΔR ² = .090***	ΔR ² = .124***	ΔR ² = .091***	ΔR ² = .087***	ΔR ² = .040***

Note that this table only shows the included sustainable process motives (block 2) of the regression analyses. Block 1 in which the product motives are included is shown (included singularly) in Table 1, and the significant associations when block 2 is included are discussed in the notes below.

¹ For dairy and mixes and sauces there are no significant associations for the product motives

² For meat consumption ready-to-eat (β=-.088; t=-2,582*) shows a significant association when the process motives are included.

³ For fruit and vegetable consumption the motives A-brand (fruit: β=-.086; t=-2.394*; vegetables: β=-.084; t=-2.435*) and ready-to-eat (fruit: β=-.081; t=-2.257*; vegetables: β=-.110; t=-3.187**) show a significant association when the process motives are included.

2.3 Discussion

The results of Study 1 reveal, among the first, that adding sustainable process motives is relevant to increase understanding of sustainable consumption. More specific, the results show that sustainable process motives increase the explained variance of organic purchases (HI confirmed). This is true for sustainable food behaviour across all included product categories.

Additionally, the results imply the relevance of specifying

different dimensions of sustainable behaviour (environment, animal welfare, social justice). Although we only partially confirm hypothesis 2, the result do show that different dimensions of sustainability are relevant for the different product groups, indicating the relevance of specifying sustainability dimensions and conducting product-specific research. The results reveal that environmental motives (organic) are relevant for understanding consumption of all specific products. This is a logical consequence for choosing organic products as a dependent variable. As proposed fair trade motives show to be relevant for fruits, but, as opposed to our hypothesis, this is not the case for vegetables. The importance of social justice is thus not confirmed for all included plant-based categories. As proposed animal welfare shows to be relevant for animal-based products (meat), though this was, against our hypothesis, not confirmed for dairy. Therefore, *H2* is only partly confirmed.

The results of Study 1 clearly indicate the relevance of sustainable process motives, though the study has a few limitations. Study 1 only included organic purchases, which might increase the impact of environmental welfare motives compared to animal welfare and social justice motives. Study 2 therefore also includes fair trade purchases. In this way we gain further insight in the importance of the three sustainability dimensions across different product labels (organic and fair trade).

Study 1 included a range of motives based on the food literature. Though the motivations were measured with different amounts of items. Additionally, one can argue that it is most relevant to show the added value of sustainable process motives beyond a vested validated scale. Study 2 therefore uses the validated Food Choice Questionnaire to explore whether adding sustainable process motives (with comparable amounts of items) increases the explained variance of sustainable purchase intentions.

3. Study 2

Study 2 aims to replicate the findings of Study 1 by using a validated measurement instrument. In addition, Study 2 explores whether different dimensions of sustainability (environmental welfare, animal welfare and social justice) differ in their added value for organic versus fair trade purchases. We hypothesis that Environmental welfare, animal welfare and social justice motives are associated with organic purchases and environmental and social justice motives are associated with fair trade purchases.

3.1 Method

3.1.1 Participants

Respondents were recruited by a research agency and completed an online questionnaire. The sample consisted of 3,748 Dutch respondents and was nationally representative in terms of age, gender, and geographic distribution. The sample consisted of 50% males, and has a mean age of 44.5 years (*SD*=15.0).

3.2.2 Measures

All selected measures were answered on seven-point scales with labelled endpoints and are described in detail below.

Food Choice Motives. We included the food-choice motives (Steptoe et al., 1995): health, convenience, sensory appeal, natural content, price, weight control, familiarity and ethical concern. Lindeman and Väänänen (2000) adapted the food choice motives such that ethical concern was divided in ecological values (environmental welfare and animal welfare), political values and religion. Based on their work we divided ecological values in environmental, animal welfare and social justice values, (see Table 3 for the included sustainable process motives). Note that Lindeman and Väänänen (2002) used only limited items to measure animal welfare and social justice. We therefore extended their work, such that we measure each dimension with multiple items. In doing so, the framework allows “direct comparisons to be made about the relative importance of dimensions (Steptoe et al., 1995, p. 269)”.

Table 3. Environmental welfare, animal welfare and social justice motives (Cronbach’s alpha)

Environmental welfare ($\alpha = .910$)
...has an environmentally friendly packaging.
...produced in an environmentally friendly manner.
...is produced without a minimum of CO_2 emissions.
...is organic.
...is produced without pesticides.
...is produced within the season.
Animal welfare ($\alpha = .908$)
...produced with sufficient freedom of movement for animals.
...is animal friendly produced.
...produced with by free-range label.
Social justice ($\alpha = .865$)
...Produced in a humane way.
...produced without child labor.
...produced without exploitation.
...is fair trade.

Each motive was measured with multiple items. Respondents rated multiple importance statements for their daily food intake on a seven-point scale with ‘completely disagree’ and ‘completely agree’ on the extremes.

Self-reported consumption. Respondents were asked to indicate how often they consumed a range of organic and fair trade products in the past two months. For organic, the included categories were fruit, vegetables, meat and dairy. For fair trade consumption, the included categories were bananas, tea, coffee and chocolate. The items were measured on seven-point scales ranging from 1=‘never’ to 7=‘daily’. These results were combined into one average score for organic food consumption and one average score for fair trade food consumption.

3.2 Results

3.2.1 Analyses

Confirmatory factor analyses were used to test whether the sustainable aspects indeed are three separate dimensions. Further analyses were performed similar to Study 1.

3.2.2 Confirmatory factor analyses.

The analyses were performed with Mplus version 6.11. The model fit indices were *RMSEA*, *SRMR*, *CFI*, and *TLI* (Kline, 2011). *RMSEA* below .06 and *SRMR* below .08 indicate a satisfactory model fit (Hu & Bentler, 1999). Finally, *CFI* and *TLI* indices of at least .90 indicate a satisfactory model fit (Bhattacharjee, 2002; Hu & Bentler, 1999). AIC, BIC and chi-square scores were used to compare models. We used chi-square difference tests, as recommended by Vandenberg and Lance (2000) to test for significant differences across models.

The results revealed that sustainability was perceived as consisting of multiple dimensions. The one-dimensional model ($\chi^2/df = 4980.808/104$, $p < .001$; CFI=.906; TLI=.892; SRMR=.042; RMSEA=.112; AIC= 170682.929) provided a significant worse fit compared to the multi-dimensional model (in which environmental welfare, animal welfare and social justice were distinguished) ($\chi^2/df = 2465.330/100$; $p < .001$; CFI=.955; TLI=.945; SRMR=.037; RMSEA=.079; AIC= Akaike (AIC) 168175.451) as indicated by a Chi-square difference test ($\Delta\chi^2(4)=2515.478$, $p < .0001$).

3.2.3 Regression analyses consumption.

Table 4 shows that the product motives explain 12.7% of the variance in self-reported organic consumption and 5.6% of the variance in self-reported fair trade consumption.

Adding the sustainable process motives beyond the product motives significantly increases the explained variance for *organic purchases* with 5.9%. For *fair trade consumption*,

adding the sustainable process motives significantly increases the explained variance with 3.0%. The results indicate that, as proposed, adding sustainable process motives significantly increases the explained variance (*HI* confirmed).

Additionally, environmental welfare and animal welfare are relevant for organic consumption, and environmental welfare, animal welfare and social justice are associated with fair trade consumption. Therefore hypothesis 3 is only partially confirmed.

3.2.4 Regression analyses specific products

Finally, we also performed the analyse for the specific products and categories meat, dairy, vegetables, fruit, bananas, coffee, tea and chocolate). The results are shown in table 5. For all products and product categories, including sustainable process motives beyond product motives shows a significant increase in explained variance. These findings confirm hypothesis 1 for the specific products and product categories.

Regarding hypothesis 2, the results show as proposed that animal-based products are associated with animal welfare and environmental welfare motives. The plant-based products show as proposed an association with environmental welfare motives, though unexpectedly not with social justice motives. These findings partially confirm hypothesis 2.

Regarding hypothesis 3, the results show, as proposed, that organic purchases are associated with environmental welfare and animal welfare (for animal-based products), whereas fair trade purchases are associated with social justice and environmental welfare. However, against our expectations, organic purchases are not associated with social justice motives. Hypotheses 3 is therefore partially confirmed.

Table 4. Hierarchical regression analyses food choice motives including sustainable motives

Food choice motives	Beta	T	F(df1, df2); R2/ Δ R2	Beta	t	F(df1, df2); R2/ Δ R2
	organic consumption			fair trade consumption		
Health	.07	2.90**		.03	1.41	
Price	-.12	-6.96***		-.09	-4.87***	
Weight	-.07	-3.54***		-.08	-3.66***	
Convenience	-.02	-1.17		-.05	-2.73**	
Familiarity	-.09	-1.62***		.08	4.29***	
sensory appeal	-.04	-.28*		-.08	-4.37***	
Natural	.306	16.27*	F(7,3747)77.944; R2= .127	.20	10.02***	F(7,3747)31.453; R2= .056
Environmental welfare	.41	10.803***		.29	7.21***	
Animal welfare	.07	2.431*		-.07	-2.08***	
Social justice	-.03	-.876	F(10,3747)85.399; Δ R2= .059***	.19	6.21***	F(10,3747)44.040 Δ R2= .050***

* $p < .05$; ** $p < .01$; *** $p < .001$; the results show the unadjusted R²; The beta coefficients of block 1 are the coefficients without model 2 included.

3.3 Discussion

Study 2 shows similar to Study 1 that sustainability motives increase the explained variance in sustainable food consumption (*H1* confirmed). Additionally, similar to Study 1 Study 2 reveals the relevance of including specific sustainability dimensions as these dimensions show to have different associations across product categories and across different product labels (organic versus fair trade).

Across different product categories, the results show that animal-based products (meat and dairy) are significantly associated with environmental welfare and animal welfare, as expected. Plant-based products (fruits and vegetables) are only significantly associated with environmental welfare motives and unexpectedly not with social justice (*H2* partly confirmed).

Across different product labels the results show that environmental welfare and animal welfare are significantly associated with organic consumption. Social justice motives are unexpectedly not associated with organic consumption. For fair trade, the results show, as proposed, a different pattern. Only environmental welfare and social justice show a significant association for the specific products (*H3* partly confirmed). The findings are discussed in detail in the general discussion.

4. General discussion

In consumer studies on food, it is customary to put emphasis on product motives that are pro-self in nature, such as taste, texture and price. At the end of the 20th century consumer concerns (Brom & Gremmen, 2000) related to

process motives (as opposed to product motives), (e.g., animal welfare, environmental friendliness, fair trade, origin or transparency) received more and more attention in research as well as in society. Thus, food choices are also influenced by practices and characteristics of food production processes and the food system at large (Dagevos & van Ophem, 2013). This blossoming field of research requires an understanding of consumption beyond product qualities such as price or taste. Therefore, the objective of this study was to take the analysis of sustainable food consumption a step further by explicitly assessing how valuable sustainable process motives are for understanding sustainable food purchases, 1) in general, 2) in specific products or product categories and 3) of different product labels (organic and fair trade).

The yield of our analysis demonstrates that the inclusion of sustainability motives have added value in explaining sustainable food choices. This is the case for sustainable food purchases in general, but also for all included products and product categories and for organic as well as fair trade products. The results not only indicate that sustainability motives are important in understanding sustainable food choices, but also that different dimensions of sustainability should be distinguished, because the added value of these dimensions differs across product categories and products and between organic and fair trade products.

The findings reveal differentiations, some expected and some unexpected, across products and product categories and between different labels. Obvious enough, animal welfare issues emerge to be more relevant for animal-based food products than for plant-based food products. Though within the group of animal-based foods, the added value of animal

Table 5. Results of regression analyses (coefficients when all motives are included) for each product category of Study 2.

	organic				fair trade			
	meat	dairy	vegetables	fruit	bananas	coffee	tea	chocolate
Block 1 Health	-.015	.029	.026	.016	.015	-.030	-.006	-.044
Price	-.126***	-.103***	-.091***	-.098***	-.76***	-.064**	-.057**	-.070***
Weight	-.030	-.066**	-.080***	-.071***	-.080***	-.063**	-.063**	-.066**
Familiarity	-.006	-.020	-.071***	-.052**	.052**	.041*	.068***	.069***
Convenience	-.067***	-.059**	-.086***	-.064**	-.037	-.038*	-.061**	-.029
Attractiveness	-.025	-.067***	-.042*	-.046*	-.82	-.088***	-.071***	-.073***
Natural	-.040	.004	-.053	-.051	-.094**	-.078**	-.095**	-.077**
Block 2 Environmental welfare	.301***	.315***	.437***	.410***	.250***	.213***	.267***	.268***
Animal welfare	.132***	.066*	.051	.023	-.057	-.058	-.045	-.072*
Social justice	-.047	-.021	-.029	.004	.174***	.194***	.131***	.154***
Block 1 F(df1,df2) R ²	F(7, 3747) 50.766***; R ² = .087***	F(7, 3747) 59.987***; R ² = .101***	F(7, 3747) 75.487***; R ² = .124***	F(7, 3747) 63.150***; R ² = .106***	F(7, 3747) 26.305***; R ² = .047***	F(7, 3747) 22.625***; R ² = .041***	F(7, 3747) 23.551***; R ² = .042***	F(7, 3747) 23.494***; R ² = .042***
Block 2 F(df1,df2) ΔR ²	F(10, 3747) 55.9509***; ΔR ² = .043***	F(10, 3747) 59.950***; ΔR ² = .037***	F(10, 3747) 84.390***; ΔR ² = .060***	F(10, 3747) 70.978***; ΔR ² = .054***	F(10, 3747) 35.909***; ΔR ² = .041***	F(10, 3747) 31.992***; ΔR ² = .038***	F(10, 3747) 31.718***; ΔR ² = .036***	F(10, 3747) 32.244***; ΔR ² = .037***

*p<.05; **p<.01; ***p<.001; the results show the Unadjusted R²:The beta coefficients of block 1 are the coefficients without model 2 included.

welfare motives differs between the product categories of meat and dairy. For organic dairy, environmental motives prove to be relevant, whereas animal welfare issues are not significantly important. For organic meat though, product motives, environmental welfare, animal welfare and fair trade all show to be relevant. This outcome may have to do with a different consumers' perception of the relevance of animal welfare of cows for production of milk (living cattle) and cows for meat production (slaughtered cattle). Furthermore, social justice appears to be less important for fruit and vegetables than expected. This might have to do with differences between products within the categories of fruits and vegetables, as some products often contain fair trade labels, while for other products this is not the case. Banana consumption, for example, shows to be associated with social justice, and bananas are imported products which often contain a fair trade label. Such results give reason to suggest that it is fruitful to specify different dimensions of sustainable behaviour (environmental welfare, animal welfare, social justice) for different products or product categories.

An unexpected finding is the significant positive relation between fair trade and meat purchases in the first study. This result is surprising, as meat products never have a fair trade label. Similarly, the negative significant relation between animal welfare and fair trade purchases is difficult to explain. Finally, based on the literature a positive significant relation between organic purchases and social justice motivations was expected, but this hypothesis was not confirmed. These unexpected findings are difficult to explain but might have to do with a lack of consumer understanding in the different sustainability dimensions, or the lack of motivational differentiation between the sustainability dimensions (see also van Dam & van Trijp, 2011). Therefore, it is of importance to conduct future research in consumer understanding of sustainable food products and the different dimensions and product labels.

As the results of this study indicate that sustainable process motivations have added value to product motivations in explaining sustainable food behaviour, this suggests that we have to think about rebalancing the scale of food consumption motives. The inclusion of the ethical motives by Lindeman and Väänänen (2000) may be regarded as a first step to be followed by others. Next to a renewed focus on the inclusion of process motives, we could consider the idea of bringing traditional product motives as well as process motives all back to one or two items rather than measuring various motives with different amounts of items. Doing so may be helpful to develop in the foreseeable future a more balanced and flexible scale tailored to study motivations in the context of sustainable food consumption.

Related to this, it is also important to consider the level of abstraction on which motivations are formulated. The FCQ measures the importance of food choice motives on 'a typical day' (Stephens et al., 1995), thus very general. This study shows that the added value of product motives and sustainable process motives differs across products and product categories. This might suggest that measurement of food choice motives

on the level of product categories or products provides a deeper understanding of sustainable food consumption. In this research, both differences between product categories (for organic labels) and between products (fair trade labels) have been found. The aggregation of product categories into animal-based and plant-based products seems too abstract, though, because (unexpected) differences between meat and dairy and between fruits and vegetables have been found for example. The optimal measurement level needs further research (see also Verain et al., 2016).

A practical implication of this study relates to the promotion of sustainable products. First of all, sustainable process motives appear to have added value in explaining sustainable consumption. This finding suggests that it can be beneficial for retailers to focus on the sustainable character of their products. In doing so, though, it is important that they critically consider the sustainability dimension that they emphasise, because the different dimensions differ in importance for different products and product categories. Future research should be conducted to get more insights in the optimal combination of sustainability dimensions and product categories or products.

In future research it is also relevant to consider different target groups who might weigh sustainability in general and/or the different sustainability dimensions differently and might be more or less interested in sustainability for different product categories (Verain et al., 2016). Van Dam & van Trijp (2011) conclude that all sustainability attributes collapse into one single motivational dimension, but this is true for light users of sustainable food products. Future research should turn out whether these results also apply to heavy users. It might well be that for heavy users, the sustainability dimension matters more. These insights will give input for more targeted communications and interventions to promote sustainable food consumption more effectively.

In conclusion, insights in sustainable consumption can be improved by considering sustainable process motives above product motives. In that context, this paper shows that it is important to take the sustainability dimension (e.g., social justice versus environmental welfare), the product label (e.g., organic versus fair trade) and the product or product category (e.g., meat versus fruit) into account for a better understanding.

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