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# To Revisit the effect of Drivers of Purchasing Behavior on Purchase Frequencies of Organic Foods

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## Abstract

**Aim:** With limited research investigating the effect of social norms and emotions on purchase frequencies of organic foods, this study aimed to identify the main drivers of purchasing behavior that could predict heavy vs. light consumers of organic foods.

**Methods:** This study adopted a cross-sectional survey using self-administered questionnaires in a local event named Farm Fest 2016. Data were collected from consumers aged 18 or above who bought organic foods in the past six months. Regression analysis was used to identify drivers of purchasing behavior that induced more consumption of organic foods by comparing purchase frequencies of heavy with light consumers.

**Results:** The odds ratios of taste, respondents' friends in consuming organic foods, and convenient points of sale for the heavy consumers were 1.628, 1.727 and 1.68 times more than those of the light consumers respectively. Emotions in terms of fear, guilt, and empathy explained 33.6% variance between the heavy and the light organic consumers. Price perception, environmental consideration, animal wellbeing, and green behavior were found not significant in predicting organic buying frequencies.

**Conclusion:** The perceived quality of organic foods, social norms, the number of distribution channels, and emotions were significant predictors of heavy consumers of organic foods.

**Keywords:** Organic foods; Purchase frequency; Emotions; Social norms; Distribution channels

## Introduction

In the food market, organic products are gaining popularity amongst both retailers and consumers. Organic foods are more costly to produce and are therefore, sold at a premium price as compared with that for the conventional foods. Food wholesalers and retailers are eager to target this market segment for the sake of raising their revenue [1]. Indeed, the global organic food market's revenue had tripled from 2000 to 2011 [2] and the market share of organic foods increased from 1.2% to 4% in the United States during the same period [3]. The organic food market looks promising and yet the statistics on its market shares remain insignificant in the last 3 years. For example, the market share of organic foods in countries like Belgium, France, Germany, and the United States were 1.8%, 2.5%, 4.4%, and 5% respectively in 2014 and had only increased slightly and kept low as compared with those of the conventional foods [4]. This misalignment between the actual trend in the market shares of the organic foods and the incorrect belief held by the public is of great interest to the author who will explore the factors that drive organic consumers' purchasing behavior.

Organic foods, by definition, are foods produced in processes that do not use synthetic substances like pesticides, chemical fertilizers, genetically modified organisms, irradiation, industrial solvents, or chemical food additives. Therefore, organic foods are deemed to be fresh and free of chemical residues [5-7]. Consumers have higher expectation for the taste and the quality of organic foods [8]. Indeed, extensive research in organic purchase behavior has tried to identify demographic factors, attitudes, product characteristics, product availability and consumer knowledge to explain the drivers and the barriers to purchasing organic foods [9]. Previous research confirmed that the sociodemographic factors exerted a significant mediating role on organic food purchasing behavior. For example, Van Doorn and Verhoef [5] found that female consumers and consumers with higher education were correlated to organic product purchase and these sociodemographic factors could be related to attitudes. In many studies, it was found that consumers who are attracted towards organic foods are mainly concerned with food safety [10-12] and health benefits [13-16], and these concerns grow with age and education [17,18]. Health and safety, therefore, are key motivators and together they are seen by consumers as an investment in health when consuming organic foods [9]. Kriwy and Mecking [19] reported that the highest number of organic product purchasers came from consumers aged between 40 to 60. These consumers are willing to pay more because they perceive organic foods as safer and healthier [17].

Some consumers purchase organic foods because they want to show responsibility to the environment [9]. Apart from the absence of harmful substances, organic food production is also extended to production that pays attention to animal welfare [9]. Previous studies suggested that consumers who have higher collective values on environment and animal welfare are more likely to purchase organic products [5]. This is because organic food choices mainly come from plantation and eating less meat can help lower carbon emissions. These consumers were found to be fewer prices sensitive to organic products and were determined to purchase organic products even when these were less easily available [9]. A Swiss study reported that around 41%-63% consumers took environmental-or climate-friendly food choices by purchasing local seasonal fruits and vegetables [20]. For consumers taking meat, they chose livestock that had no medication treatment and did not contain residues of chemicals to show their concern with nonhuman species [21]. It is clear that people's concern on the environment and animal wellbeing has a bearing on the consumption of organic foods.

Although there was a comprehensive research on drivers and barriers of consumers' organic buying behavior, seldom has there been a focus on the frequency of such organic buying behavior. Undeniably consumers who buy organic foods once a month would have diverse attitudes and perceptions on organic foods from those consumers who buy at least three times a week. It is logical to associate light organic

buyers as causal buyers who may purchase organic foods in marketing campaigns or promotion events. To these light organic buyers, they may not be guided by the same aforementioned drivers and concerns that affected the heavy organic buyers. Zepeda and Deal [22] also revealed that heavy organic buyers are more likely to hold the belief that organic foods are more nutritious, have better quality and are tastier as compared to light organic buyers or conventional food buyers.

From our literature review, it was found that limited research was done on the relationship between social norms and organic buying behavior. Social norms are characterized by consumers' response based on the perceptions of prevailing sentiments. Norms in reference groups have been shown to have an influencing impact on consumer behavior and individuals are prone to conform to norms for the good of receiving acceptance and praise, if otherwise, expecting negative and disappointed responses [23,24]. Social norms in a Dutch study were found correlated to consumers' purchasing decisions and frequencies of organic meat. However, no significant effect was found between social norms and purchasing choice or frequencies in the study of organic meat.

As different buying frequencies of organic foods were critical to its total sales volume and market shares, it would be valuable to revisit how the often-used and evidenced drivers influence consumers' buying frequencies of organic foods. With limited research investigating the effect of social norms, it was worthwhile to examine their impact on the buying frequencies of organic foods. Therefore, the aim of this study was to investigate if previously identified drivers of purchasing behavior (such as socio-economic factors, perceived quality, perceived consumer effectiveness on animals' welfare, social norms, environmental concerns, green behavior, channel of sales and consumers' emotions) predict the heavy organic food consumers' purchase frequencies.

## Method

This study was a cross-sectional survey conducted using self-administered questionnaires. Data were collected in a local event named Farm Fest 2016, which was organized by the Agriculture, Fisheries and Conservation Department, HKSAR. This local event lasted from 7$^{th}$ to 10$^{th}$ January, 2016 and aimed to support the development of the Hong Kong agricultural and fisheries industry. Local organic farmers and food manufacturers set up their stalls to promote and sell their organic food products to visitors to show their support to the event.

### Samples and sampling

Visitors who came to the Farm Fest were invited to participate in the survey using convenience sampling. The inclusion criteria for the respondents were being of age 18 or above and Chinese ethnicity, who purchased organic foods in the past 6 months. Exclusion criteria for the recruitment of subjects were those who could not read or write Chinese and had cognitive impairment that might prohibit them from understanding the questions.

### Instrument

A questionnaire adapted from Verhoe's conceptual model [25] was developed to investigate the factors predicting the purchase frequencies of organic foods. The conceptual model had two dependent variables: the purchase of organic meat and its frequency. This conceptual model was relevant as it included relevant investigated drivers of organic purchasing behavior as independent variables, such as economic and marketing variables, emotions, environmental attitudes and demographic variables. Specifically, the model also included social norms as independent and purchase frequency as dependent variables. Since organic purchase frequency had been less studied in existing literature, it was valuable to explore the effect of drivers with respect to light and heavy purchasing frequency consumers. The questionnaire adapted from Verhoef's conceptual model was tested for reliability and validity. Afterwards, it was translated into Chinese to enhance its readability and understanding among the local participants. In the process a backward translation with 15 participants was conducted to ensure that the Chinese translation conformed to its original meaning in English. The backward translation was 97.6% in agreement with the original. In addition, test-retest reliability was conducted with five participants to ensure that the questionnaire yielded consistent results over time, and the correlation coefficient for test-retest reliability was 0.98.

The questionnaires included 24 questions. Seven questions were related to demographic characteristics of the respondents. Ordinal and nominal choices were included. One question was about the respondents' organic purchasing frequencies and they could respond using a set of four ordinal options for decreasing frequencies. One question was on the respondents' perceived quality of organic foods as better than the conventional foods and they could select from a set of categorical choices (taste, smell, succulence, outside and freshness). Another question asked if the respondents were capable to recognize organic foods. Three categorical choices ("capable", "to some extent" and "not capable") were given. The next two questions were related to the distribution of organic foods, with one asking whether there were sufficient organic food retailers near their homes and another asking if they frequently visited these retailers. The choices for both questions were "yes" and "no". As regards perceived consumer effectiveness, the respondents were asked if they could improve the wellbeing of animals in farming by eating more organic foods and the choices were categorical with "Yes, we can", "No, we cannot" and "Yes, there is a positive effect". About social norms, the respondents were asked if their friends and acquaintances who consumed organic foods positively influenced their organic food purchasing decisions and four categorical choices ("many of my acquaintances also purchase organic food", "my friends reject the fact that I would purchase ordinary food" and "my acquaintances do not urge me to purchase organic food") were provided. To get the feedback on environmental concerns, the respondents were asked whether humans had the right to modify the natural environment to suit their needs and four categorical choices ("humans need not adapt to the natural environment because they can remake it to suit their needs", "humans are placed above nature", "plants and animals primarily exist to be used by humans" and "humans must live in harmony with nature in order to survive") were allowed. The next three questions were on the green behavior to enquire if the respondents purchase green energy, separate garbage and save or invest green. These three questions had categorical choices of "yes" and "no" [25].

Three questions were on the price perception of organic foods. In the first question, the respondents were asked to assess the price level of organic foods. The next two questions asked if they totally agreed that the price of organic foods was much too high and reasonable enough respectively. The first question had responses in ordinal scale, ranging 1 (very high) to 5 (very low). The second and third questions had responses in semantic scale, ranging from -3 (totally disagree) to

+3 (totally agree). Subsequently, consumers' emotions (fear, guilt and empathy) were investigated separately as different attributes in respective situational questions. In the fear question, respondents were asked to think about the health consequences of eating conventional foods. They were asked to assess their own feelings ("worried", "scared" and "afraid") and give their answers in ordinal scale from 1 (to a very low extent) to 7 (to a very high extent). In the guilt question, the respondents were asked to assess the extent of their own feelings ("troubled mind", "guilty", "unpleasant" and "regret") after purchasing ordinary meat. They were asked to give responses in ordinal scale from 1 (to a very low extent) to 7 (to a very high extent). In the empathy question, the respondents were asked again to assess the extent of their own feelings ("hurt", "helpless", "pitiful", "compassion" and "broken-hearted) in ordinal scale from 1 (to a very low extent) to 7 (to a very high extent) [25].

### Procedure

The study proposal was approved by the Research Ethics Committee of the University of Project Team. It was also approved and supported by the Agriculture, Fisheries and Conservation Department of HKSAR, the organizer of Farm Fest 2016. Visitors to the event were given an information sheet stating the objectives and goals of this study. For those visitors who were willing to participate in the study, they were requested to sign a consent form and complete a questionnaire. The questionnaire was self-administered and their participations were voluntary.

### Data Analysis

Purchasing frequency was used as a dependent variable in the data analysis. The four responses to the purchasing frequency question were recoded into two groups: light consumers for those who purchased organic foods for less than four times a month and heavy consumers who purchased organic foods for more than four times a month. Mean differences for price perception and emotions (fear, guilt and empathy) were compared by independent t-tests between light and heavy consumers to explore if these drivers affected their purchase frequencies. Linear regression was used to determine whether any emotions (empathy, fear and guilt) could predict heavy and light organic consumers. Logistic regression was run to determine whether price perception could predict heavy vs. light purchase frequencies. In addition, multinomial regression was used to identify nominal factors, while binary regression was used to analyze categorical factors affecting heavy organic consumers.

## Results

In this survey there were 392 respondents in total, with 65.3% (n=256) female and 34.7% (n=136) male. More than half of the respondents (n=231, 58.9%) had purchased organic foods for less than 3 years. Around one third of the respondents (n=129, 32.9%) had purchased organic foods for 3 to 5 years, while less than one tenth of the respondents (n=32, 8.2%) had purchased organic foods for more than 5 years. In revealing their capability to recognize organic food, 25.0% (n=98) of the respondents answered they were capable, 39.3% (n=154) answered with reservations, and 35.7% (n=140) answered they were not capable.

### Demographic characteristics

Among the respondents, 45.2% (n=177), 49.2% (n=193) and 5.6% (n=22) were in the age groups of 18-35, 36-60 and >60 respectively. As regards education attainment of the respondents, 43.4% (n=170) obtained a degree or higher degree, 47.7% (n=187) finished high school or professional school and 8.9% (n=35) had elementary education or below. For the household size of the respondents, 17.9% (n=70) had 1 to 2 family members, 44.9% (n=176) had 3 family members and 37.2% (n=146) had four or more family members, and 35.5% (n=139) had children in their families. As regards the monthly household income, one-half (n=202,51.5%) earned HK$30,000 (USD3,866) or lower, one-third (n=147,37.5%) earned between HK $30,001 and HK$60,000 (USD3,866-USD7732) and one-tenth (n=10.9%, 43%) earned HK$60,000 (USD7732) or more.

### Price perception and emotional factors

Mean scores of the price perception between light and heavy consumers were similar and showed no significant difference. Results in Table 1 indicated that both light and heavy consumers perceived the price of organic foods as high. Regarding emotional differences between the two groups of consumers, the mean scores of all heavy consumers' emotions (fear, guilt and empathy) were higher than those of light consumers and showed significant differences ($p<0.05$). This reflected that the heavy organic consumers experienced a higher extent of emotions than the light consumers. The mean scores of emotions (fear, guilt and empathy) of heavy consumers were also found higher than those of the light consumers. The results of fear (worried, scared and afraid), guilt (troubled mind, guilty, unpleasant and regret) and empathy (hurt only) showed significant differences between light and heavy consumers. However, the results of empathy (helpless, pitiful, compassion and broken-hearted) showed insignificant differences (Table 1).

The results from linear regression using price perception, fear, guilt and empathy as predictors of the purchase frequency of organic foods were shown in Table 2. In model 1, the drivers affecting heavy consumers' organic food purchases included price perception, fear, guilt and empathy. Model 1 explained 34.0% of the variance for heavy vs. light purchase frequencies of organic foods ($R^2$=0.115; F4,386=12.581). In model 2, linear regression was performed again with the exclusion of price perception. Model 2 explained 33.6% of the variance for heavy consumers' purchase frequency of organic foods ($R^2$=0.113; F3,387=16.428). In both models, empathy was found a significant predictor ($p<0.05$). This revealed that the contribution of price perception in explaining the variance between the light and heavy consumers' purchase frequencies of organic foods was unimportant.

### Quality, animal welfare, social norms, environmental concerns and channel of sales

The results from multinomial regression were shown in Table 3. Regarding the perceived quality, the odds ratio of taste was found the highest among all other investigated attributes. For taste of the perceived quality, the odds of the consumers to purchase heavily versus lightly were 1.628 times greater. The odds ratio of appearance for the consumers to purchase heavily versus lightly was 0.390 times smaller. Although appearance had the lowest odds, it was significant in predicting the purchase frequency of organic food.

| | Type of Organic Food Consumers | | |
|---|---|---|---|
| | **Light** | **Heavy** | **p-value** |
| | mean (s.d.) | mean (s.d.) | |
| Price perception | 1.59 (0.70) | 1.56 (0.75) | p>0.05 |
| Fear | 3.21 (1.91) | 4.22 (2.01) | p<0.05 |
| Worried | 3.31 (1.90) | 4.25 (2.02) | p<0.05 |
| Scared | 3.14 (1.98) | 4.25 (2.01) | p<0.05 |
| Afraid | 3.18 (1.98) | 4.16 (2.09) | p<0.05 |
| Guilt | 2.77 (1.85) | 3.99 (1.92) | p<0.05 |
| Troubled mind | 2.80 (1.86) | 4.03 (1.94) | p<0.05 |
| Guilty | 2.77 (1.88) | 4.00 (1.97) | p<0.05 |
| Unpleasant | 2.74 (1.87) | 4.00 (1.97) | p<0.05 |
| Regret | 2.76 (1.92) | 3.91 (1.96) | p<0.05 |
| Empathy | 2.75 (1.68) | 4.00 (1.88) | p<0.05 |
| Hurt | 2.78 (1.82) | 4.01 (1.92) | p<0.05 |
| Helpless | 2.65 (1.69) | 3.99 (1.89) | p>0.05 |
| Pitiful | 2.77 (1.69) | 4.00 (1.93) | p>0.05 |
| Compassion | 2.91 (1.81) | 4.11 (1.94) | p>0.05 |
| Broken-hearted | 2.63 (1.74) | 3.92 (1.95) | p>0.05 |
| *Significant differences were at α level = 0.05. | | | |

**Table 1:** Price perception and emotion differences between light and heavy organic food consumers.

| | **B** | **S.E.** | **t** | **p-value** | **R** | **R Square** |
|---|---|---|---|---|---|---|
| Model 1 | | | | | | |
| Constant | 0.312 | 0.070 | 4.443 | 0.000 | | |
| Price | -0.034 | 0.033 | -1.018 | 0.309 | | |
| Fear | -0.028 | 0.027 | -1.022 | 0.307 | 0.340 | 0.115 |
| Guilt | 0.047 | 0.037 | 1.281 | 0.201 | | |
| Empathy | 0.068 | 0.026 | 2.610 | 0.009 | | |
| Model 2 | | | | | | |
| Constant | 0.265 | 0.053 | 5.021 | 0.000 | | |
| Fear | -0.030 | 0.027 | -1.099 | 0.273 | 0.336 | 0.113 |
| Guilt | 0.050 | 0.036 | 1.369 | 0.172 | | |
| Empathy | 0.066 | 0.026 | 2.523 | 0.012 | | |

**Table 2:** Linear regression analysis: to predict purchase frequencies of organic foods.

| **Variables** | **B** | **S.E.** | **Wald** | **Odds Ratio** | **95% C.I.** |
|---|---|---|---|---|---|

| | | | | | Lower | Upper |
|---|---|---|---|---|---|---|
| Constant | -1.085 | 0.319 | 11.575 | | | |
| Perceived quality | | | | | | |
| Taste | 0.487 | 0.354 | 1.890 | 1.628 | 0.813 | 3.261 |
| Smell | -0.349 | 0.391 | 0.794 | 0.705 | 0.328 | 1.520 |
| Succulence | -0.065 | 0.380 | 0.029 | 0.937 | 0.445 | 1.974 |
| Appearance | -0.941 | 0.429 | 4.817 | 0.390# | 0.168 | 0.904 |
| Freshness | 0[b] | | | | | |
| Perceived consumer effectiveness to improve animals' well being | | | | | | |
| can | 0.045 | 0.328 | 0.019 | 1.046 | 0.550 | 1.988 |
| cannot | 0.051 | 0.315 | 0.026 | 1.052 | 0.567 | 1.953 |
| has a positive effect | 0[b] | | | | | |
| Social norms | | | | | | |
| For my friends and acquaintances the consumption of organic foods is important. | 0.547 | 0.378 | 2.093 | 1.727 | 0.824 | 3.623 |
| Many of my acquaintances also purchase organic foods. | 1.076 | 0.309 | 12.106 | 2.933# | 1.600 | 5.377 |
| My friends reject my purchase of organic foods. | -0.198 | 0.404 | 0.239 | 0.821 | 0.371 | 1.813 |
| My acquaintances do not urge me to purchase organic foods. | 0[b] | | | | | |
| Environmental concerns | | | | | | |
| Humans have the right to modify the natural environment to suit their needs. | -0.303 | 0.467 | 0.419 | 0.739 | 0.296 | 1.847 |
| Humans need not adapt to the natural environment because they can remake it to suit their needs. | -0.399 | 0.429 | 0.863 | 0.671 | 0.289 | 1.557 |
| Humans are placed above nature. | -0.049 | 0.534 | 0.008 | 0.953 | 0.334 | 2.713 |
| Plants and animals primarily exist to be used by humans. | 0.382 | 0.681 | 0.315 | 1.465 | 0.386 | 5.562 |
| Humans must live in harmony with nature in order to survive. | 0[b] | | | | | |
| Green behavior | | | | | | |
| purchase green energy | 0.199 | 0.214 | 0.863 | 1.220 | 0.802 | 1.857 |
| separate garbage | 0.133 | 0.232 | 0.330 | 1.142 | 0.725 | 1.800 |
| save or invest green | 0.190 | 0.216 | 0.775 | 1.209 | 0.792 | 1.846 |
| Channel of sales of organic foods | | | | | | |
| points of sale near your home | 0.524 | 0.246 | 4.551 | 1.68# | 1.043 | 2.732 |
| available in your frequently visited supermarkets | -0.400 | 0.242 | 2.722 | 0.670 | 0.417 | 1.078 |

[a]The reference category was light consumer;

[b]This parameter was set to zero because it was redundant;

#Indicated significant differences at alpha level =0.05.

**Table 3**: Regression analysis: to predict heavy purchase frequencies of organic foods[a].

The results reflected that taste was a significant predictor of heavy consumers' purchases while appearance was only a significant predictor of light purchases. Regarding perceived consumer effectiveness to improve animals' wellbeing, the odds ratios of all

responses were around 1, reflecting this attribute could not significantly predict the purchasing frequency of organic food.

As for social norms, it was found that the odds ratio of influence by many acquaintances that purchased organic foods was 2.933, which was significantly higher than the others. Besides, the odds ratio of recognition of the value of organic foods in social circles was 1.727 times greater to predict heavy vs. light organic purchases. This indicated that the organic food experience of the respondents' acquaintances was a significant driver affecting their purchase frequencies of organic foods.

As for environmental concerns, the odds ratio of the concern that plants and animals primarily existed to be used by humans was 1.465 times greater for heavy than light organic food purchasers. The odds ratios of other concerns were lower than 1, indicating that the environmental factors could not predict the purchase frequency of organic food. Coming to the green behavior, the odds ratios of its three categories ranged from 1.142 to 1.220, indicating they had similar power in predicting heavy vs. light consumers' purchases of organic food. Regarding the channel of sales, the odds ratio of the proximity of the points of sale was 1.68 times greater in predicting heavy than light consumers' purchases of organic foods. This driver was found to be significant. However, the odds ratio of the availability of organic foods in frequently visited supermarkets was 0.670. This indicated that more sales channels were more important than the availability of organic foods in supermarkets.

## Discussion

Consumer preference for organic foods is evidently associated with their inherent characteristics and their potential benefits. The identified factors that may influence the consumer preference for organic rather than conventional foods include sensory qualities, nutritional value, freshness, health, food safety and environmental friendliness [6,7,26]. However, previous empirical findings showed inconsistencies of the drivers and barriers of organic purchase behavior across studies. The contradictory findings could be due to the different operational definitions of the attributes, cross cultural differences and different food categories in various studies. These variances in findings may also be possibly due to the neglect of the purchase frequency attribute in the studies. Indeed, the purchasing behavior of organic foods could be a process of reasoning: intention, decision-making and action. This behavior could also be observed as a spectrum of actions, that is, the frequency of the occurrence of the behavior. It is clear that organic consumers who purchase organic foods once a month carry a different set of behavioral determinants than those who purchase organic foods three times a week. Therefore, consumers' organic food purchasing frequencies should be noted carefully when we try to identify attributes of the organic food purchasing behavior.

This study is the first of its kind to investigate the prediction power of various drivers of organic food purchase behavior by separating the consumers into two categories: light consumers and heavy consumers. As over 90% of the participants had higher education, this supported previous studies' findings that knowledge and awareness are important for translating the organic information into perceived benefits. In the survey, around half of the consumers could not recognize organic foods, which indicates that potential organic consumers still have difficulties understanding the certification and standardization of organic foods. This echoed our finding that education level of the consumers, one of the drivers, is critical for their better evaluation of organic food credentials and features in the marketing media.

Our findings also indicated price perception was not a driver in predicting consumers' buying frequencies of organic foods. In fact, the willingness-to-pay for food with specific attributes is vastly studied in different food categories. The premium for organic food products could be ranged from 19% for minced organic meat to 174% for organic pork chops [1,27]. Of course, this price premium varied in different countries. The consumers in general commented that the price of organic foods was very expensive. It was found that consumers were more willing to pay higher premium for organic foods with a shorter shelf life such as fruits and vegetables [9]. In this study, price perception was found to be a less important driver in the prediction of heavy organic consumers. The reason behind might possibly be due to the fact that organic products were dominantly fresh foods in the local market.

Emotions (fear, guilt and empathy) were found significant to predict heavy consumers of organic foods. They were discovered in scenarios of consuming conventional foods and violating animal welfare. The "hurt" of empathy to animals was particularly found significant in the behavioral attributes of heavy organic consumers. This finding, however, contradicted the answer to the question on environmental concerns. When respondents were asked to judge the value of existence between humans, plants and animals, they preferred to put their right of existence higher than that of plants and animals. This indicated that the perceived benefits of heavy consumers were critical predictors of more purchase of organic foods. However, it was found that the consumers did not perceive their effectiveness in improving animal's wellbeing by buying more organic foods, which seemed to be inconsistent with other studies. The divergence might be due to the comparatively limited poultry and dairy production in Hong Kong. Besides this study did not establish a relationship between the respondents' green behavior and the purchasing frequency of organic foods.

Taste of the perceived quality, having many friends who purchased organic foods and proximity to points of sale of organic foods were found significant predictors for heavy consumers of organic foods. This indicated consumers put great emphasis on better qualities to compensate for the extra premium they paid. Besides, peer influence was also found important to increase the respondents' purchasing frequency of organic foods. This could be due to the words-of-mouth effect which facilitated the transmission of perceived benefits of organic foods within their social network. In addition, this study was in line with previous studies on the prediction that more retailers of organic foods could increase their penetration and accessibility of two potential consumers.

The effect of social norms was found insignificant on buying choices or frequencies in studies related to organic meat. Later studies concluded that organic meat purchase behavior was mainly driven by economic, marketing and emotion variables. As there were limited studies investigating the effect of drivers or motives on organic purchasing frequencies, the difference in the effect of social norms could be due to the different food categories in these studies. The divergence could also be cross-cultural differences between countries with and without produce supported or manufactured locally. Future research could focus on more different categories of organic foods.

## Conclusion

The perceived quality of organic foods, social norms, and the number of distribution channels selling organic foods were significant predictors for heavy consumers of organic foods. Emotions in fear, guilt and empathy were also found as significant behavior attributes for heavy organic consumers.

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