

Exploring North Carolina Consumers' Local Food Purchasing Intentions and Behaviors: An Application of the Theory of Planned Behavior

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Exploring North Carolina Consumers' Local Food Purchasing Intentions and Behaviors: An Application of the Theory of Planned Behavior

Abstract

Consumers' interest in local food has increased in recent years, driven by their desire to support alternative agricultural systems. Despite this interest, local food constitutes only a fraction of total U.S. agricultural sales. Our study explores the factors influencing the intentions and behaviors of North Carolina consumers when purchasing local food by using an extended theory of planned behavior (TPB) model. We developed a survey instrument and purchased a non-probability sample of 933 North Carolina consumers using the Qualtrics sampling services. The results from our structural equation model indicate that behavioral intentions and subjective knowledge influence purchasing frequency, explaining 13.6% of the variance in purchasing frequency. In addition, consumers' attitudes, subjective norms, and perceived behavioral control influence behavioral intentions, explaining 47% of the variance in behavioral intentions. These results highlight the importance of providing North Carolina consumers with clear information on where to buy local food because they are more likely to purchase it if they know where it is available. Communications and marketing strategies should also seek to increase these consumers' understanding of local food systems, improve social support for local food, and reduce perceived barriers to purchasing such products. Our study contributes to the literature by providing novel insights into the factors influencing consumers' local food purchasing intention and behavior. The results can inform targeted communications and marketing strategies promoting local food systems in North Carolina, ultimately increasing consumer engagement and support for local agriculture.

Keywords

Agricultural communication, consumer behavior, food marketing, local food systems, theory of planned behavior

Authors

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Introduction

Local food interest and purchasing have been widely discussed in the literature over the past decade (Dorneich et al., 2024; Holt et al., 2018; Qi et al., 2017; Tidwell & Lamm, 2020; Trivette, 2015). The shift toward more industrialized agriculture, which began after World War II, has led some consumers to seek greater engagement with and awareness of the environmental aspects of food production (Cochrane, 1979; Holt et al., 2018; Schnell, 2013). This growing interest in alternative agricultural systems arises from a mistrust of highly specialized, monocultural practices common in conventional agriculture (Dorneich et al., 2024).

In recent years, engagement in local food systems has increased significantly, driven by factors such as consumer interest, supportive policies, producer supply, environmental concern, and a desire to support local economies and communities (Eiseman & Won, 2023; Kumar & Smith, 2017). Motivations for purchasing local foods include economic impact, social benefits, and perceived quality and freshness (Eiseman & Won, 2023). However, rising food costs have led some consumers to deprioritize the “place of origin” and other product attributes in their purchasing decisions, as affordability becomes a greater consideration when purchasing food (Kalaitzandonakes et al., 2023; Smithers et al., 2008, p. 338).

Local food systems can enhance economic and social benefits by providing direct income to producers and strengthening community ties and connections (Stone et al., 2024). Kirwan and Maye (2013) suggested that local food consumption can improve food security and nutrition through more sustainable production practices, healthier eating habits, and nutritious food. Despite consumer interest and awareness in local food benefits, local food constitutes only a fraction of total U.S. agricultural sales (Qi et al., 2017). In 2020, local food sales from 147,000 farms amounted to \$9.0 billion, showing an increase in revenue but a decrease in the number of farms commercializing food locally (National Agricultural Statistics Service, 2020).

To better understand local food purchasing behaviors, further exploration of the motivating factors is needed. The term “local food” lacks a unified definition, varying widely based on geographic proximity or personal connection to the food (Brune et al., 2023; Granvik et al., 2017; Trivette, 2015). Consumers’ definitions adapt based on where they live and available food options (Holt et al., 2018; Warwick et al., 2022). For our study, local food refers to food produced in a specific locality, or food grown and manufactured within North Carolina, consistent with both previous research conducted in North Carolina (Brune et al., 2023) as well as the North Carolina Department of Agriculture & Consumer Services (Brinkmeyer et al., 2023).

The study aims to contribute to the existing literature by exploring factors influencing North Carolina consumers’ behaviors toward local food using an extended Theory of Planned Behavior (TPB) model (Ajzen, 1991), which incorporates additional constructs such as subjective knowledge and environmental concern. We also investigate how North Carolina consumers define local food, as discerning localized definitions is critical for mapping the consumer local food landscape (Brune et al., 2023). Previous research suggests that positive attitudes toward local food can influence consumers’ purchasing intentions, regardless of socioeconomic and cultural characteristics (Bianchi & Mortimer, 2015). However, local food

consumption is more common in developed countries with environmentally conscious consumers who have greater access to information about food origins and processing (Bianchi & Mortimer, 2015).

Our study contributes meaningfully to the literature in several ways. First, our focus on North Carolina provides novel insights into a specific U.S. consumer subgroup, which can inform targeted communications and marketing strategies for local food systems. Second, in our application of TPB, we measured (self-reported) behavior as consumers' frequency of buying local food, while most studies investigating local food behaviors focus on behavioral intentions alone. Third, we modified TPB by adding subjective knowledge and environmental concern, enhancing the model's predictive capacity.

Literature Review and Theoretical Background

We used an extended version of Ajzen's (1985) TPB to develop the evaluated model explaining consumers' frequency of purchasing local food. The original theory posits that three primary factors influence an individual's intention to perform a specific behavior: attitudes, subjective norms, and perceived behavioral control. Previous research has used TPB to explore purchasing behaviors related to local food (e.g., Baby & Joseph, 2024; Holt et al., 2018; Kumar & Smith, 2017; Shin et al., 2016; Zhang et al., 2018), organic food (e.g., Al-Swidi et al., 2014; Canova et al., 2020; Teixeira et al., 2022), halal food (e.g., Ali et al., 2020; Iranmanesh et al., 2020; Sherwani et al., 2018), and gene-edited food (e.g., Lindberg et al., 2023), among other types (e.g., Lim & An, 2021). Thus, the well-established theory has been implemented widely to understand global consumers' food choice behaviors.

In TPB, attitudes refer to positive or negative views toward the behavior in question. We operationally defined attitudes in our study as views regarding whether local foods are better (e.g., tastier, healthier, more natural) or worse than non-local foods. In local food contexts, attitude has been found to significantly influence behavioral intention (Baby & Joseph, 2024; Bianchi & Mortimer, 2015; Dedeoğlu et al., 2022; Holt et al. 2018; Kumar & Smith, 2017; Shin et al., 2016; Zhang et al., 2018). The more positive attitudes consumers have toward local food, the stronger their intention to purchase it. When it comes to food choice, attitudes have also been found to directly influence behavior (Homer & Khale, 1988; Parrella et al., 2023). Therefore, in addition to examining the effect of attitude on behavioral intention, we also examined the effect of attitude on behavior, or in this case, frequency of buying local food. We propose the two following hypotheses:

H₁: Attitude has a significant, direct positive effect on behavioral intention.

H₂: Attitude has a significant, direct positive effect on frequency of buying local food.

Subjective norms are beliefs regarding the importance of other people's approval or disapproval toward the behavior (Ajzen, 1985). Such beliefs result in social pressures for an individual to act in ways that would be perceived as desirable by groups important to them (Ajzen & Fishbein, 1980). We operationally defined subjective norms as perceived social approval from people who are important to an individual regarding buying local foods. Several studies, including Baby and Joseph (2024), Holt et al. (2018), and Kumar and Smith (2017),

found that subjective norms significantly influence U.S. consumers behavioral intentions toward local food. Therefore, the more consumers perceive social approval from those important to them, the stronger their intentions to purchase local food. In contrast, Shin et al. (2016) and Dedeoğlu et al. (2022) found no significant effect; however, Dedeoğlu et al.'s study focused on tourists' behavior toward local food in Antalya, Turkey, rather than local consumers. Based on these results, we propose the following hypothesis:

H₃: Subjective norm has a significant, direct positive effect on behavioral intention.

Perceived behavioral control describes one's perceived ability to perform the specific behavior (Ajzen, 1985; Ajzen & Fishbein, 1980). It reflects the confidence individuals have in their capability to execute the behavior, accounting for internal (e.g., self-efficacy) and external (e.g., resource availability) factors. We operationally defined perceived behavioral control as the perceived ability to buy local food. Some studies have found that perceived behavioral control significantly influences behavioral intentions toward local food (Dedeoğlu et al., 2022; Holt et al., 2018; Shin et al., 2016), while others have found it has no effect (Baby & Joseph, 2024; Kumar & Smith 2017). Despite these mixed results, the consistent theoretical underpinnings suggest that perceived behavioral control is an important determinant of behavioral intentions and may reveal insights specific to North Carolina consumers. Therefore, we propose the following hypothesis:

H₄: Perceived behavioral control has a significant, direct positive effect on behavioral intention.

According to TPB, behavioral intention is a key predictor of actual behavior. It reflects an individual's readiness to engage in a specific behavior, shaped by their attitudes, subjective norms, and perceived behavioral control. A stronger intention to perform a behavior leads to a higher likelihood of carrying out that behavior (Ajzen, 1991). We operationally defined actual behavior as the frequency of local food purchases. While most studies using TPB to explore consumers' food choices, including those related to local food, focus on behavioral intentions and do not measure actual behavior (e.g., Al-Swidi et al., 2014; Baby & Joseph, 2024; Dedeoğlu et al., 2022; Holt et al., 2018; Kumar & Smith, 2017; Lim & An, 2021; Sherwani et al., 2018), Shin et al. (2016) did examine actual behavior and found that behavioral intention significantly influences frequency of local food purchases among U.S. consumers. Because it is important to consider actual behavior for marketing and communication purposes, we propose the following hypothesis:

H₅: Behavioral intention has a significant, direct positive effect on frequency of buying local food.

Many studies have extended TPB to include additional variables relevant to food choice. As examples, Kumar and Smith (2017) added health consciousness, concern for the environment, and concern for local economies as antecedents of attitude toward local food, and Shin et al. (2016) added self-congruity as an antecedent of attitude. Additionally, Holt et al. (2018) added past experience and self-identity/moral obligation to assess their interaction with the TPB variables on intent to buy local blueberries; Baby and Joseph (2024) added

environmental support and food attributes as predictors of behavioral intention; and Zhang et al. (2018) added risk and benefit perceptions as predictors of attitude and behavioral intention. In each instance, the inclusion of additional variables relevant to local food behaviors improved the model's predictive capacity. We similarly extended our model to include knowledge and environmental concern to better predict local food behaviors.

Knowledge—objective and subjective—may play a role in local food choice (Brucks, 1985; Grujić et al., 2013; Park et al., 1994; Radecki & Jaccard, 1995; Raju et al., 1995). Objective knowledge is defined as what an individual actually knows, while subjective knowledge is a self-assessment of how much an individual thinks they know (Han, 2019). In our study, we operationally defined subjective knowledge as the respondents' self-assessed understanding of the local food system in their area. Zhang et al. (2018) added subjective knowledge to TPB as a moderator between benefit perceptions and attitudes/intentions in their study of tourists' local food consumption in Nanjing, China. They found that the effect of benefit perceptions on attitudes and intentions changed depending on the level of subjective knowledge. Subjective knowledge has also been found to influence consumers' attitudes and behaviors related to organic food (Fatha & Ayoubi, 2023), healthy food (van der Merwe et al., 2024), genetically modified food (Rihn et al., 2021), and functional food, which provides health benefits beyond basic nutrition (Baker et al., 2022). Based on these findings and the need to further explore the impact of subjective knowledge on local food behaviors, we propose the following hypotheses:

- H₆: Subjective knowledge has a significant, direct positive effect on behavioral intention.
- H₇: Subjective knowledge has a significant, direct positive effect on frequency of buying local food.

Environmental concern may also play a role in local food purchasing behavior because increased consumer awareness of environmental issues has led to greater interest in food origins (Autio et al., 2013; Weatherell et al., 2003). In more recent years, however, consumers have tended to prioritize factors such as health, taste, and cost over environmental considerations when making food choices (AP-NORC Center for Public Affairs Research, 2023; Cavaliere et al., 2014; Gorham et al., 2015). Several studies have demonstrated a relationship between environmental perceptions and local food purchasing (e.g., Baby & Joseph, 2024; Bimbo et al., 2020; Kumar & Smith, 2017). As examples, Baby and Joseph (2024) and Kumar and Smith (2017) found that environmental support and environmental concern, respectively, positively influenced attitudes toward local food. When exploring consumers' green purchasing behaviors, Zhang et al. (2019) found that environmental concern directly influenced behavioral intentions. Because buying local food is often considered a green purchase, we chose to explore whether a similar direct effect exists. Therefore, we propose the following hypothesis:

- H₈: Environmental concern has a significant, direct positive effect on behavioral intention.

We also identified sex as an important demographic factor to consider. Females are more likely to control their eating habits by choosing healthy foods (Meesuptong et al., 2023). Males and females also have preferences for category-specific food products. For example, males tend to prefer red and processed meats, while females tend to prefer vegetables and seafood (Feraco et

al., 2024). When it comes to local foods, some studies have found that females are more likely than males to purchase them (Carfora & Catellani, 2023; Feldmann & Hamm, 2015; Meesuptong et al., 2023). McGuirt et al. (2014) found that females in North Carolina, specifically, were motivated to purchase local foods due to freshness, support for local agriculture, and community aspects. To further explore the influence of sex, we propose the following hypotheses:

H₉: Females have more positive attitudes toward local food compared to males.

H₁₀: Females have stronger behavioral intentions toward local food compared to males.

H₁₁: Females have higher frequency of buying local food compared to males.

Methods

Questionnaire Development

We developed the questionnaire using Qualtrics. The order in which we discuss how variables were measured reflects the order that questions were asked. The first question asked respondents how they defined local food. Respondents selected from eight response options adapted from Brinkmeyer et al. (2023), Community Science (2013), and Smith and MacKinnon (2007). Then, we asked respondents to keep the following definition in mind as they answered the remaining questions: *The North Carolina Department of Agriculture & Consumer Services defines local food according to state boundaries. The current survey defines local food as food grown and manufactured within the state of North Carolina.*

We measured subjective knowledge using four items, with two adapted from Campbell (2021) and two were researcher-developed. The items were 1) I have a basic understanding of the local food system in my area; 2) I am familiar with the activities included under the umbrella of local food production; 3) I know how local food is sourced in my area; and 4) I know how local food is distributed in my area.

We measured attitudes toward local foods using five items adapted from Aprile et al. (2016), and we asked respondents to indicate their level of agreement with the statements about local foods when comparing them to non-local foods. The items were 1) Local foods are tastier; 2) Local foods are healthier; 3) Local foods are higher quality; 4) Local foods are more natural; and 5) Local foods ensure less negative environmental impact.

We measured frequency of buying local food using a researcher-developed, 10-point sliding scale, with 0 meaning 'I never buy local food' and 10 meaning 'I buy local food every time I shop.' We measured perceived behavioral control using three items, with two adapted from Kumar and Smith (2017) and one researcher developed. The items were 1) For me, buying local food is easy; 2) If I wanted to, it would be possible to buy local food instead of conventional food; and 3) I know where I can go to buy local food.

We measured subjective norms using three items adapted from Parrella et al. (2023): 1) People who are important to me would approve of me buying local foods; 2) People who are important to me think I should buy local foods; and 3) People who are important to me buy local foods. We measured environmental concern using three items, with two adapted from Dagoc

(2021) and one from Wachenheim and Rathge (2002): 1) Agriculture causes environmental problems; 2) There is a need to reduce environmental impacts from agriculture; and 3) The environmental issues associated with farming are severe.

We measured behavioral intentions using three items, with two adapted from Shin and Hancer (2016) and one researcher developed. The items were 1) I expect to buy local food in the near future; 2) I want to buy local food in the near future; and 3) I will buy local food in the near future. Respondents answered all questions using a 6-point Likert scale from strongly disagree (1) to strongly agree (6). The only question that we asked using a 7-point Likert scale, including an 'I don't know' midpoint, was the one measuring subjective norms. We chose to provide a midpoint because we did not want to force respondents to choose when they may not know how those important to them feel about local food consumption.

Data Collection

We received approval from the North Carolina State University Institutional Review Board to collect data (approval number 26306). To obtain informed consent, we included the consent form at the beginning of the questionnaire for respondents to review. After reviewing the consent form, they selected one of two options: 'Yes, I consent to participate,' or 'No, I do not consent to participate.' We used Qualtrics sampling services to obtain a non-probability sample of consumers and conducted a pilot test with roughly 5% of the target sample size ($N = 30$) from October 30 to November 1, 2023. Upon reviewing the preliminary data for any discrepancies or quality concerns and finding none, we proceeded with the final data collection from November 3 to December 11, 2023. Qualtrics representatives cleaned the data and implemented several quality assurance checks to ensure the accuracy of each response.

Sample

The data supporting this study were collected from the same respondents and at the same time as those supporting other studies. Therefore, the socio-demographic characteristics reported herein are identical to those reported elsewhere. All respondents lived in North Carolina. The majority were female (51.1%, $n = 478$) and white (66.02%, $n = 616$; see Table 1). The most represented age groups were 25–34 and 35–44 years old. An equal proportion of respondents had either a high school diploma or GED or had attended some college without earning a degree (both 25.5%, $n = 238$). The largest income bracket was \$25,000–\$49,999 annually (31.6%, $n = 295$), and most respondents identified as moderate politically (43.1%, $n = 402$).

Table 1***Socio-Demographic Characteristics of Respondents***

Characteristics	<i>f</i>	%
Gender		
Female	478	51.1
Male	447	47.8
Non-binary/third gender	7	0.7
Prefer not to say	1	0.1
Age		
18–24 years	113	12.1
25–34 years	172	18.4
35–44 years	179	19.1
45–54 years	119	12.7
55–64 years	165	17.6
65–74 years	140	15.0
75–84 years	40	4.3
85+ years	5	0.5
Ethnicity*		
White or European	616	66.02
Black or African American	243	26.05
Hispanic, Latino/a/x, or Chicano/a/x	88	9.43
Asian or Asian American	25	2.68
American Indian, Native, or Alaska Native	23	2.47
Multiracial	13	1.39
Characteristics	<i>f</i>	%
Middle Eastern or North African	4	0.43
Prefer not to say	4	0.43
Native Hawaiian or Pacific Islander	3	0.32
Income		
Less than \$25,000	204	21.9
\$25,000–\$49,999	295	31.6
\$50,000–\$74,999	187	20.0
\$75,000–\$99,999	94	10.1
\$100,000–\$149,999	93	10.0
\$150,000 or more	37	4.0
Prefer not to say	23	2.5
Highest Level of Education Completed		
High school diploma or GED	238	25.5
Some college, but no degree	238	25.5
Bachelor's degree	178	19.1

Highest Level of Education Completed		
Associates or technical degree	145	15.5
Graduate or professional degree (MA, MS, MBA, PhD, JD, MD, DDS)	92	9.9
Some high school or less	41	4.4
Prefer not to say	1	0.1
Political Ideology		
Moderate	402	43.1
Conservative	177	19.0
Liberal	148	15.9
Very conservative	93	10.0
Very liberal	72	7.7
Apolitical	41	4.4

Note. * indicates respondents could select more than one response.

Data Analysis

The dataset had no missing data values. We used structural equation modeling to evaluate an extended version of the TPB to understand factors influencing respondents' frequency of buying local food. Using SPSS Statistics version 29, we conducted descriptive statistics, and using Mplus version 8, we conducted the measurement and structural model assessments. We used the Root Mean Square Error of Approximation (RMSEA), the Weighted Root Mean Square Residual (WRMR), the Standardized Root Mean Square Residuals (SRMR), the Comparative-Fit Index (CFI), and the Tucker-Lewis Index (TLI) to evaluate both the measurement model and the structural model. To examine gender differences in attitudes, behavioral intentions, and frequency of purchasing local food, we conducted independent samples *t*-tests. Prior to conducting the *t*-tests, we used Levene's test to assess the assumption of homogeneity of variances. The assumption was met for attitude ($F = 0.862, p = .354$) and behavioral intention ($F = 0.220, p = .639$), so the *t*-test results assuming equal variances were reported. For frequency of buying local food, the assumption was violated ($F = 5.868, p = .016$); therefore, we reported the *t*-test results aligned with unequal variances. We also calculated effect sizes using Cohen's *d* to estimate the magnitude of differences.

Results

The largest proportions of respondents defined local food as food grown and manufactured within 50 miles ($f = 394, 42.2\%$) and 100 miles ($f = 169, 18.1\%$) of where they live (see Table 2).

Table 2*Respondents' Definitions of Local Food (N = 933)*

Definition	<i>f</i>	%
Food grown and manufactured within 50 miles of where I live.	394	42.2
Food grown and manufactured within 100 miles of where I live.	169	18.1
Food grown and manufactured in my state.	129	13.8
Food grown and manufactured in my region.	113	12.1
Food grown and manufactured in the United States.	71	7.6
Food grown and manufactured within 250 miles of where I live.	41	4.4
Food grown and manufactured within 400 miles of where I live.	15	1.6
Other	1	0.1

Respondents perceived themselves as having a moderate level of knowledge about local food ($M = 3.97$, $SD = 1.11$; see Table 3). Their attitudes were favorable ($M = 4.54$, $SD = 0.92$), and they were moderately concerned about the environment ($M = 3.51$, $SD = 1.18$). Respondents felt capable of purchasing local food ($M = 4.46$, $SD = 0.97$) and showed a strong intention to buy local food ($M = 4.85$, $SD = 0.89$). In addition, subjective norms were strong ($M = 5.48$, $SD = 1.15$), indicating significant social influence in their buying decisions, and respondents purchased local food somewhat frequently ($M = 6.38$, $SD = 2.29$).

Table 3*Means and Standard Deviations of Variables (N = 933)*

Variables	<i>M</i>	<i>SD</i>
Subjective knowledge (6-point scale)	3.97	1.11
Attitude (6-point scale)	4.54	0.92
Environmental concern (6-point scale)	3.51	1.18
Perceived behavioral control (6-point scale)	4.46	0.97
Behavioral intention (6-point scale)	4.85	0.89
Subjective norms (7-point scale)	5.48	1.15
Frequency of buying local food (10-point sliding scale)	6.38	2.29

Substantial, statistically significant positive associations existed between respondents' subjective knowledge and perceived behavioral control ($r = .52$, $p < .001$), attitudes and behavioral intentions ($r = .53$, $p < .001$), perceived behavioral control and behavioral intentions ($r = .58$, $p < .001$), subjective norms and behavioral intentions ($r = .53$, $p < .001$), and perceived behavioral control and frequency of buying local food ($r = .54$, $p < .001$; see Table 4). Moderate, statistically significant positive associations existed between respondents' subjective knowledge and attitudes ($r = .41$, $p < .001$), subjective knowledge and behavioral intentions ($r = .38$, $p < .001$), and subjective knowledge and subjective norms ($r = .40$, $p < .001$), among others.

Table 4*Pearson r Correlations Among Variables (N = 933)*

	1	2	3	4	5	6	7
Subjective knowledge (1)	1						
Attitudes (2)	.41***	1					
Environmental concern (3)	.10**	.02	1				
Perceived behavioral control (4)	.52***	.45***	.01	1			
Behavioral intentions (5)	.38***	.53***	-.01	.58***	1		
Subjective norms (6)	.40***	.46***	.06	.46***	.53***	1	
Frequency (7)	.47***	.37***	.01	.54***	.45***	.40***	1

Note. *** indicates $p < .001$; ** indicates $p < .01$; * indicates $p < .05$.

Measurement Model

We assessed the fit of the measurement model using established criteria—RMSEA, SRMR, CFI, and TLI (see Table 5). The RMSEA was 0.050, indicating an acceptable model fit. The SRMR was 0.035, indicating a good model fit. The CFI and the TLI were both greater than 0.90, also indicating a good model fit (Bentler, 1990; Kim et al., 2016).

Table 5*Measurement Model Fit*

Criteria	Thresholds for Acceptable Fit	Measurement Model
RMSEA	< 0.05–0.08	0.050
SRMR	< 0.08	0.035
CFI	> 0.90	0.968
TLI	> 0.90	0.961

We further assessed the fit of the measurement model by using convergent and discriminant validity to assess construct validity (see Table 6). To assess convergent validity, we used factor loadings with a threshold value of 0.50 (Fornell & Larcker, 1981). All factor loadings were greater than 0.50 and were statistically significant at the $p < .001$ level. We also used the composite reliability (CR) values with a threshold of 0.70 (Hair, 2019). All CR values were greater than 0.70. We further used the average variance extracted (AVE) values with a threshold of 0.50 (Fornell & Larcker, 1981). All AVE values were greater than 0.50. In addition, all measures were internally consistent as indicated by Cronbach's alpha coefficients exceeding 0.70 (Cronbach, 1951). To assess discriminant validity, we examined the correlations between variables. All correlations were below the recommended threshold of 0.85 (Hair et al., 2019).

Table 6*Measurement Model Assessment*

Constructs and Items	Factor Loading	Cronbach's Alpha	CR	AVE
Knowledge		$\alpha = .91$	0.913	0.736
Item 1	0.767			
Item 2	0.839			
Item 3	0.911			
Item 4	0.883			
Attitudes		$\alpha = .90$	0.902	0.649
Item 1	0.800			
Item 2	0.857			
Item 3	0.854			
Item 4	0.817			
Item 5	0.690			
Environmental concern		$\alpha = .86$	0.855	0.664
Item 1	0.812			
Item 2	0.799			
Item 3	0.832			
Perceived behavioral control		$\alpha = .84$	0.835	0.628
Item 1	0.818			
Item 2	0.751			
Item 3	0.807			
Behavioral intentions		$\alpha = .91$	0.909	0.769
Item 1	0.872			
Item 2	0.856			
Item 3	0.902			
Subjective norms		$\alpha = .81$	0.812	0.549
Item 1	0.645			
Item 2	0.818			
Item 3	0.834			

Note. Items correspond to the items listed in the Questionnaire Development section.

Structural Model

We assessed the fit of the structural model using established criteria—the chi-square statistic, RMSEA, SRMR, CFI, and TLI (see Table 7). The chi-square statistic was not statistically significant ($\chi^2(2, 933) = 5.04, p = .081$), indicating a good model fit (Fornell & Larcker, 1981; Kuttschreuter & Hilverda, 2019). The RMSEA was 0.040 and the SRMR was 0.010, both indicating an excellent model fit. The CFI and the TLI were both greater than 0.90, both indicating a good model fit (Bentler, 1990; Kim et al., 2016).

Table 7*Structural Model Fit*

Criteria	Thresholds for Acceptable Fit	Structural Model
χ^2 (df)	--	5.040 (2)
χ^2 /df	< 3.00–5.00	2.520
RMSEA	< 0.05–0.08	0.040
SRMR	< 0.08	0.010
CFI	> 0.90	0.997
TLI	> 0.90	0.983

Table 8 summarizes the direct, indirect, and total effects of the independent variables on respondents' frequency of buying local food. Attitudes had a significant, direct negative effect (-.150) on frequency of buying local food but a significant, indirect positive effect through behavioral intention (.217), resulting in a small positive total effect (.067). Subjective norms and perceived behavioral control had significant, indirect positive effects through behavioral intentions, leading to positive total effects (.170 and .296, respectively). Subjective knowledge had a significant, direct positive effect (0.230) and a small non-significant, indirect negative effect (-0.008) through behavioral intention, resulting in a positive total effect (0.222). The effect of environmental concern was not significant.

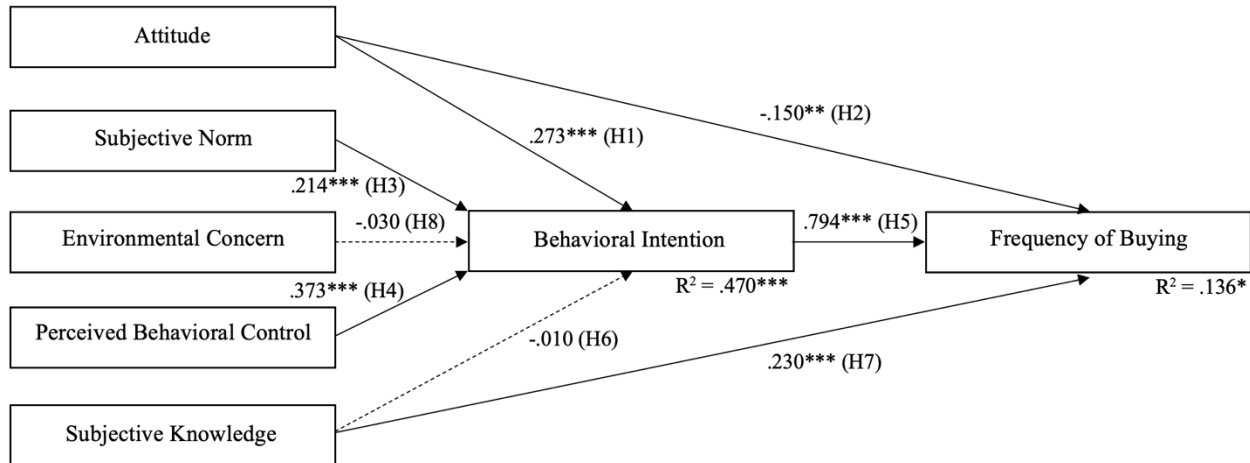
Table 8*Standardized Indirect, Direct, and Total Effects of Independent Variables on Frequency of Buying Local Food*

	Direct Effects on Frequency of Buying	Indirect Effects on Frequency of Buying	Total Effects on Frequency of Buying
Subjective knowledge	.230	-.008	.222
Attitudes	-.150	.217	.067
Environmental concern	--	-.024	-.024
Perceived behavioral control	--	.296	.296
Subjective norms	--	.170	.170
Behavioral intention	.794	--	.794

The extended version of the TPB explained 47% of the variance in respondents' behavioral intentions toward local food and 13.6% of the variance in respondents' frequency of buying local food (see Figure 1). The coefficients reported in Figure 1 are the standardized path coefficients. A solid arrow represents a significant path, and a dashed arrow represents a non-significant path.

Figure 1

Evaluated Structural Model Explaining Respondents' Behavioral Intentions Toward Local Food and Frequency of Buying Local Food



Note. * indicates $p < .05$; ** indicates $p < .01$; *** indicates $p < .001$.

We found no statistically significant difference in attitudes ($t(923) = -1.115, p = 0.265$) or behavioral intentions ($t(923) = 0.988, p = 0.324$) between males and females. We did find a statistically significant difference in how frequently respondents reported purchasing local food ($t(923) = 2.138, p = 0.033$). Males ($M = 6.55, SD = 2.12$) reported purchasing local food more frequently than females ($M = 6.23, SD = 2.44$). Although statistically significant, the effect size was small (Cohen's $d = 0.141$).

Discussion

Our results provide novel insights into how respondents define and engage with local food, as well as the key factors influencing their purchasing behaviors. We developed an extended version of TPB to explain consumers' frequency of purchasing local food, with attitude, subjective norm, environmental concern, perceived behavioral control, and subjective knowledge as antecedents of behavioral intention, and behavioral intention as a predictor of local food purchasing frequency. Table 9 summarizes the conclusions for our hypotheses.

Table 9

Conclusions for Hypotheses

	Hypothesis	Conclusion
H ₁	Attitude has a significant, direct positive effect on behavioral intention.	Supported
H ₂	Attitude has a significant, direct positive effect on frequency of buying local food.	Not supported
H ₃	Subjective norm has a significant, direct positive effect on behavioral intention.	Supported

	Hypothesis	Conclusion
H ₄	Perceived behavioral control has a significant, direct positive effect on behavioral intention.	Supported
H ₅	Behavioral intention has a significant, direct positive effect on frequency of buying local food.	Supported
H ₆	Subjective knowledge has a significant, direct positive effect on behavioral intention.	Not supported
H ₇	Subjective knowledge has a significant, direct positive effect on frequency of buying local food.	Supported
H ₈	Environmental concern has a significant, direct positive effect on behavioral intention.	Not supported
H ₉	Females have more positive attitudes toward local food compared to males.	Not supported
H ₁₀	Females have stronger behavioral intentions toward local food compared to males.	Not supported
H ₁₁	Females have higher frequency of buying local food compared to males.	Not supported

Behavioral intention had the strongest direct effect on frequency of buying local food, indicating that respondents' intention, or readiness to engage, is a powerful predictor of their actual purchasing behavior (Ajzen, 1991). Shin et al.'s (2016) study of U.S. consumers demonstrated a similar effect. This is an important finding since most investigations into consumers' local food purchasing behaviors focus on behavioral intention rather than actual behavior (e.g., Baby & Joseph, 2024; Dedeoğlu et al., 2022; Holt et al., 2018; Kumar & Smith, 2017; Lim & An, 2021). As a result, targeted communications and marketing strategies should seek to foster strong behavioral intentions. Since behavioral intentions are largely influenced by attitudes, subjective norms, and perceived behavioral control, these factors should be central to such strategies.

Perceived behavioral control had the largest direct effect on behavioral intention and the largest indirect effect on frequency of buying local food. This finding aligns with those of Dedeoğlu et al. (2022), Holt et al. (2018), and Shin et al. (2016), but contradict those of Baby and Joseph (2024) and Kumar and Smith (2017) who found that perceived behavioral control had no effect. For North Carolina consumers in our sample, their perceived ability to buy local food was key to their purchasing behavior. To improve perceived behavioral control, communications and marketing strategies should focus on reducing perceived barriers (e.g., availability, price) and increasing access to local food. This can be achieved by establishing additional convenient locations for local food sales, promoting community-supported agriculture programs where consumers can support a farm by purchasing shares or subscriptions, and enhancing farmers' direct-to-consumer outreach. Methods of enhancement could be improving online visibility, expanding delivery options, leveraging social media, hosting farm events, engaging in community partnerships, and implementing loyalty programs to encourage repeat purchases. Consumers need clear information on where to buy local food because they are more likely to purchase it if they know where it is available, rather than needing to find it on their own.

Subjective knowledge also had a substantial direct effect on frequency of buying local food. This is an important finding because, to the best of our knowledge, we are the first to add

subjective knowledge to TPB and examine its effects on behavioral intention and actual behavior toward local food, even though it has been deemed an important factor in similar contexts (e.g., organic food [Fatha & Ayoubi, 2023]), healthy food [van der Merwe et al., 2024], genetically modified food [Rihn et al., 2021], functional food [Baker et al., 2022]). To improve subjective knowledge, communications and marketing strategies should seek to increase North Carolina consumers' understanding of local food systems (e.g., how local food is sourced, distributed, and sold). Exposure to local food systems through opportunities to engage with and learn from relevant stakeholders (e.g., local farmers, local chefs, county extension agents) may be one of the best ways to increase understanding. Examples of educational events include agritourism experiences and interactive workshops designed to engage community members. A communications campaign that leverages various channels, such as social media, local media outlets, community events, and digital platforms, may also provide consumers with clear and practical information about local food systems, helping them feel more knowledgeable and connected.

In line with previous studies, we found that subjective norms directly influenced respondents' behavioral intentions (Baby & Joseph, 2024; Holt et al., 2018; Kumar & Smith, 2017), and therefore indirectly affected their frequency of buying local food. This suggests that beliefs about the importance of others' opinions regarding local food purchases play a significant role in shaping respondents' buying behaviors. Therefore, fostering social support for local food consumption among influential social circles, such as family, friends, and community leaders, may be an effective goal for communications and marketing efforts. Leveraging the role of social influence can be achieved in communication “by highlighting social approvals and endorsements and featuring relatable figures and testimonials” (Parrella et al., 2023, 2024, p. 9). Additionally, developing community-based initiatives, such as local food ambassador programs, where knowledgeable and enthusiastic consumers advocate for local food within their communities, may amplify and reinforce social approval.

Attitudes further emerged as a significant factor directly influencing behavioral intention, indicating that respondents' views on whether local foods are better than non-local foods play an important role in their readiness to purchase them (Baby & Joseph, 2024; Dedeoğlu et al., 2022; Holt et al. 2018; Kumar & Smith, 2017; Shin et al., 2016; Zhang et al., 2018). However, the direct negative effect of attitude on the frequency of buying local food was unexpected. Respondents' actual purchasing frequency did not increase, despite having positive views about local foods. This counterintuitive result suggests that other factors may be influencing their actual purchasing behavior, and highlights a potential disconnect between respondents' intentions and real-world behaviors.

Possible reasons for the discrepancy include local food availability, perceived behavioral control, and local food systems knowledge. Also, the attitude we measured included perceptions of taste, health, quality, and environmental impact. While respondents might have positive attitudes toward these aspects, their actual experiences may not always align with their expectations. For example, they may encounter local foods that do not meet their taste preferences, or fail to perceive immediate, tangible benefits (i.e., improved health, naturalness, positive environmental impact) from consuming local foods, reducing their purchase frequency. Despite respondents having positive attitudes, they may also consider other practical barriers,

such as pricing, convenience, variety, availability. These perceived practical barriers could potentially lead to a low frequency of purchases. Furthermore, even with positive attitudes, if respondents do not feel confident in their ability to find and purchase local foods, their actual purchasing frequency may remain low. Future research should investigate the underlying factors contributing to the disconnect between North Carolina consumers' positive attitudes and frequency of purchasing local foods.

Environmental concern did not yield a significant effect on respondents' behavioral intentions toward local food. One possible explanation is that we measured general environmental concern related to agriculture rather than environmental concern specific to local food systems. It could be that focusing more on context-specific environmental concerns, such as concerns about the environmental impacts of food distribution, may have yielded different results. Therefore, future research should examine whether different operationalizations of environmental concern influence local food purchasing behaviors. The inclusion of environmental concern in TPB should be reconsidered and modified in future research, specifically as an antecedent of attitude, as seen in previous studies by Baby and Joseph (2024) and Kumar and Smith (2017). The importance of environmental concern highlighted in these studies suggests that it may still be a valuable factor shaping consumer attitudes. Nevertheless, our results do not provide enough evidence to suggest that addressing environmental concerns related to agriculture in communication will positively affect North Carolina consumers' behaviors, warranting further investigation.

Contrary to our hypotheses, the results did not support sex differences in attitudes or behavioral intentions toward local food. Unexpectedly, we found that males reported purchasing local food significantly more frequently than females, which contradicts prior research suggesting that females are more likely to do so (Carfora & Catellani, 2023; Cholette et al., 2013; Feldmann & Hamm, 2015; Meesuptong et al., 2023). This discrepancy may reflect reporting bias, regional variations, or household and cultural dynamics. We recommend more region-specific research on sex and local food behaviors and caution against assuming that females are the primary target audience for local food communication and marketing efforts.

Conclusions

Our results, specific to North Carolina consumers, reveal novel insights into the factors influencing local food systems engagement. Our extended version of TPB explained a large amount of variance in consumers' behavioral intentions toward local food (47%), but only a small amount of the variance in their frequency of buying local food (13.7%). This discrepancy suggests that while consumers may express strong intentions to buy local food, other factors (e.g., availability, price, convenience) may limit their actual purchasing behavior. Addressing these barriers could help bridge the gap between intention and action and increase local food system engagement.

Among the factors included in our model, perceived behavioral control had the largest positive effect on behavioral intention, followed by attitude and subjective norm. These results underscore the importance of consumer confidence in their ability to purchase local food, as well as the role of their overall evaluations of local food attributes and social influences in

shaping their intentions. Strengthening perceived behavioral control through initiatives that help consumers know where to buy local food and increasing access may be particularly effective in improving intentions. Additionally, behavioral intention had the largest positive effect on frequency of buying, followed by subjective knowledge. These results suggest efforts to reinforce both consumers' intentions and knowledge of local food systems could promote purchasing behaviors. Environmental concern did not affect consumers' decision-making, indicating that the environmental benefits of local food production should not be the focus of communication for North Carolina consumers.

We recommend future studies explore additional factors that may influence local food purchasing behavior, such as trust (Canova et al., 2020), health consciousness (Kumar & Smith, 2017; Teixeira et al., 2020), past experience (Holt et al., 2018), moral norms, and self-congruity (Shin et al., 2016). We also recommend future studies examine how direct-to-consumer marketing strategies and experiential factors (e.g., farm visits, tasting events) impact both intention and behavior. Importantly, our results can inform targeted communications and marketing strategies promoting local food systems in North Carolina, ultimately increasing consumer engagement and support for local agriculture. In particular, efforts should focus on increasing consumers' confidence in their ability to purchase local food, strengthening their understanding of local food systems, and fostering social support for local food consumption within influential social networks.

Limitations and Strengths

The study has three key limitations and two key strengths. The first limitation is the use of self-reported data from a non-probability sample, which may lead to response bias. The second limitation is that we relied on self-reported data to measure frequency of purchasing local food. With the resources available, this is the closest we could get to actual purchasing behavior, though we recognize that self-reports may not fully reflect respondents' real-world practices. The third limitation is the sample being skewed toward a predominantly white demographic, with an overrepresentation of lower- to middle-income households and individuals with lower formal education levels, potentially limiting the diversity of consumer perspectives represented. The first strength is the large sample of North Carolina consumers, which enhances the potential for generalizability. The second strength is the study's theoretical foundation and its contribution to theory. Through our comprehensive review of the literature, environmental concern and subjective knowledge emerged as important factors to consider in consumer decision-making, yet their roles in the context of local food remained underexplored. By integrating these constructs into an extended TPB model, our study provides a more nuanced understanding of the psychological drivers of local food engagement.

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