

A model for predicting consumer choice to shop in a new grocery store using the Theory of Planned Behaviour

International
Journal of Retail &
Distribution
Management

21

Patrick Küpper, Matthias Seel and Matthias Kokorsch

Institute of Rural Studies,

*Johann Heinrich von Thünen Institute, Federal Research Institute for Rural Areas,
Forestry and Fisheries, Braunschweig, Germany*

Received 23 November 2023
Revised 22 December 2023
25 January 2024
21 June 2024
23 August 2024
Accepted 30 September 2024

Abstract

Purpose – Gravity models and analogue store approaches are inadequate in predicting purchases in neighbourhood stores. This requires a new theoretical and empirically tested approach.

Design/methodology/approach – We use the Theory of Planned Behaviour (TPB) to determine which factors predict the choice for a new neighbourhood store. We develop a suitable model using a structural equation model with survey data from two cases in which all households in the catchment areas were surveyed both before and after the store opened.

Findings – We find the TPB to be appropriate for predicting store choice. Beliefs about one-stop shopping, social pressure from family members and car availability are most important in explaining the intention to shop in the planned store. These factors also explain the actual shopping in this store after opening.

Originality/value – Our model predicts store choice before a store opens. Using a two-wave survey, we avoid ex-post rationalisation and show that, at least in our cases, quality, price and assortment do not predict store choice.

Keywords Store choice, Theory of Planned Behaviour, Neighbourhood store, Food retailing, Store attributes, Social referents, Control factors

Paper type Research paper

1. Introduction

The success of a new store depends mainly on its location and whether consumers in the projected catchment area are willing to shop there. It is thus crucial for grocery retailers, on the one hand, and spatial planners, on the other, to forecast the amount of groceries local customers would buy in a new store. Retail research and practice lacks theoretically based models that can be used to predict consumers' grocery store choices before stores are established. In this article, we contribute to the theoretical basis for forecasting the use of neighbourhood stores, defined as small grocery stores, in a new location.

In practice, two forecasting methods are commonly used to analyse store location choices (Wood and Browne, 2007): spatial interaction models, which are based on reductionist models, and the analogue stores approach, which is an atheoretical, data-driven approach. The spatial interaction models—mostly variations of Huff's (1963) gravitation model—estimate flows of purchasing power on a macro level. These models are deployed to understand consumer's choice between city centres or shopping malls (Khawaldah *et al.*, 2012). They can also project shopping activity at grocery stores with a sales area of more than 3,000 m² (Wood and Browne, 2007), as these store formats can act as footfall generators and thus fulfil the model's

© Patrick Küpper, Matthias Seel and Matthias Kokorsch. Published by Emerald Publishing Limited. This article is published under the Creative Commons Attribution (CC BY 4.0) licence. Anyone may reproduce, distribute, translate and create derivative works of this article (for both commercial and non-commercial purposes), subject to full attribution to the original publication and authors. The full terms of this licence may be seen at <http://creativecommons.org/licences/by/4.0/legalcode>

Funding: This work was supported by the German Federal Ministry of Food and Agriculture (BMEL) [grant number 2817LE018].



International Journal of Retail &
Distribution Management
Vol. 53 No. 13, 2025
pp. 21–40
Emerald Publishing Limited
e-ISSN: 1758-6690
p-ISSN: 0959-0552
DOI 10.1108/IJRDM-11-2023-0670

underlying assumptions. The spatial interaction models use “objective” indicators for (car) accessibility and attractiveness, despite the fact that the subjective perception of store characteristics is crucial for consumer behaviour (Maruyama and Wu, 2014). Previous studies have shown that driving time has become less important, especially for smaller stores since more customers (spontaneously) go for top-up shopping, combine their grocery shopping with other activities, and regularly buy at several stores (Wilkinson, 2023; Wood and Browne, 2007). Given these particularities of grocery stores and small stores, modelling store choice based on spatial interaction models results in less accurate forecasts.

The analogue stores approach employs data from stores similar to the one planned in order to estimate the potential market share in the catchment area. This approach uses information on demographics or distance from consumers’ home to the store (Khawaldah *et al.*, 2012; Wood and Browne, 2007). This approach is based either on customer survey data collected for all stores in the portfolio of the retail chain, or on average turnover (per square metre) of the respective store format. Ideally, catchment area demographic indicators and micro and macro location characteristics are used to compare the planned store with existing stores and/or to estimate the new store’s revenues using regression models. However, empirical findings suggest that store choice is not dependent on age, gender, income, or consumption behaviour (Goodman and Remaud, 2015). Moreover, data from other stores often cannot be transferred to new stores because specific store qualities (e.g. the competition in the local market or neighbouring footfall generators) interfere with average effects, which is particularly relevant for small stores (Fildes *et al.*, 2022; Wood and Browne, 2007).

Given that both approaches are geared towards making predictions for larger stores and/or draw on experiences from existing stores, they are only partially suitable to predict who will buy how much at a planned neighbourhood store. Thus, to date, this market segment lacks a theory-driven model that can forecast consumer choice for a new neighbourhood store before it opens. In this case, location decisions and business plans are dominated by intuition in practice (Hernández and Bennison, 2000; Pioch and Byrom, 2004). A theory-driven model would not only improve our scientific understanding of store choice (Runyan and Droge, 2008), but could also be used in practice to help retailers improve their sales forecasts for planned stores and identify approaches to increase sales. In addition, the public sector could enhance planning processes with more realistic needs assessments.

An issue faced by existing empirical studies on store choice is *ex post* rationalisation. Studies in the field tend to employ *ex post facto* designs with customer surveys—typically at the point of sale—trying to link store choice with perceived store attributes and satisfaction with the shopping experience (Goić *et al.*, 2021; Goodman and Remaud, 2015; Yokoyama *et al.*, 2022). If respondents only justify their current behaviour, then cause and effect cannot be separated properly. For this reason, Bonfrer *et al.* (2022) conclude in their review paper that longitudinal designs and structural models are needed to address this methodological issue. The appropriateness of the Theory of Planned Behaviour (TPB) to solve such problems has already been empirically proven multiple times (Ajzen, 1991). The TPB is a well-established theory for predicting actual behaviour and identifying factors that interventions can build upon to change behaviour.

To better understand the factors that predict the choice of using a new neighbourhood store, in Section 2 we build a theoretical model based on the TPB, which integrates potential impact factors on store choice identified in the retail literature. We empirically test our model with two-wave surveys in two case study areas in Germany: the first wave collects data on the potential impact factors before a neighbourhood store is established, while the second wave focuses on the actual behaviour after the opening (Section 3). By using a structural equation model, we can determine which factors can predict store choice and to what extent, and which factors proposed in the literature do not contribute to the prediction (Section 4). We discuss the findings in Section 5 and conclude with the implications for research and practice in Section 6.

2. Applying the Theory of Planned Behaviour to store choice

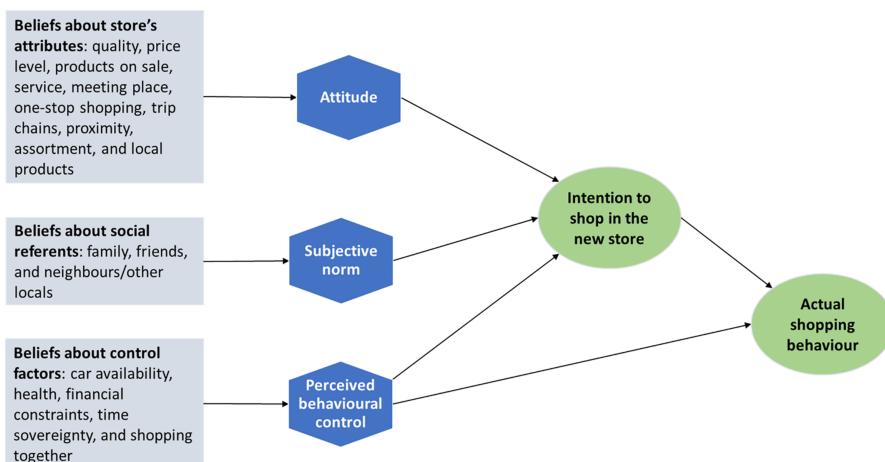
The Theory of Planned Behaviour (TPB) is an integrative model for predicting (and changing) human social behaviour (Ajzen, 1991; Fishbein and Ajzen, 2010). Although human behaviour (such as store choice) is complex, the TPB claims that only a few determinants explain behaviour. Accordingly, behavioural beliefs form the attitude towards the behaviour, normative beliefs shape the subjective norm, and control beliefs result in the Perceived Behavioural Control (PBC). Attitude, subjective norm, and PBC, in turn, explain the intention to perform the behaviour. Intention and PBC determine the actual behaviour. All other factors, such as demographics, habits, or identities are considered to be background factors and may influence the beliefs, but are not required for the model. Moreover, a meta-analysis and a recent review demonstrate that socio-demographics have only a marginal impact on retail patronage (Pan and Zinkhan, 2006) or store format choice (Bonfrer *et al.*, 2022) respectively.

TPB has been widely used in retail research to explain online grocery shopping behaviour (Zhao *et al.*, 2023; Zhou and Liu, 2022), store format choice (Anand and Sinha, 2009), or local and ethical shopping behaviour (Mullis and Kim, 2011). Since TPB has not yet been applied to store choice, we specify the theoretical model for explaining store choice (Figure 1) in this section by using existing literature related to store choice.

2.1 Attitude towards shopping in a store

People's attitude towards behaviour is determined by their beliefs about the attributes of the behaviour. According to the expectancy-value model (Fishbein and Ajzen, 1975), which is one of the foundations of the TPB, a belief about an attribute is the product of the subjective probability that a behaviour has a certain attribute and the evaluation of that attribute. The attitude, then, is the aggregation of the beliefs over all attributes. Relevant attributes can be drawn from the literature on store choice and customer satisfaction, as will be shown in the next paragraph.

In so far as store choice is concerned, scholars have traditionally highlighted price, service quality, range of goods, and location as important dimensions (Agergård *et al.*, 1970). Low prices and the availability of products on sale represent the first dimension (Goodman and Remaud, 2015; Miller and Kean, 1997; Nair, 2018). The second dimension relates to service quality and consists of product quality and, more recently, the availability of a range of local



Source(s): Authors' own work

Figure 1. Theoretical model that applies TPB to store choice

products (Broadbridge and Calderwood, 2002), as well as staff friendliness (Faria *et al.*, 2022; Goodman and Remaud, 2015). The third dimension comprises the assortment and the opportunity for one-stop shopping (Broadbridge and Calderwood, 2002; Goodman and Remaud, 2015; Sethuraman *et al.*, 2022). The location of a store represents the fourth dimension and includes proximity to the home and the ease of trip chains (Bonfrer *et al.*, 2022; Huff, 1963; Marshall, 2019). Beyond these dimensions, the social function of stores as meeting places or “third places” (Oldenburg, 1999) reflects the opportunity to encounter friends and acquaintances – a highly relevant aspect of rural life (Broadbridge and Calderwood, 2002; Miller and Kean, 1997; Oeser *et al.*, 2019; Satyam *et al.*, 2022). Because the beliefs about such attributes of a store are only weakly correlated with store choice (cf. Liu-Thompkins *et al.*, 2022 for retailer loyalty), the TPB adds subjective norm and PBC to attitude.

2.2 Subjective norm

In the TPB, the subjective norm is determined by the total set of normative beliefs about the behaviour. These beliefs result from the expectation of important referents multiplied with the motivation to comply with the respective referent (Ajzen, 2012). This perceived social pressure to perform a certain behaviour (Ajzen, 1991) was also observed in store choice (Marshall *et al.*, 2018, p. 141) and depends on a person’s level of involvement in the neighbourhood or village community (Miller and Kean, 1997; Addis and Grünhagen, 2014). In addition to neighbours, it can be assumed that family members and friends are also important referents (Zhou and Liu, 2022). If the expectations of these groups are important to a person, and this person perceives the expectation from such groups to buy in a newly built store, this combination (subjective norm) leads to the intention to choose the store.

2.3 Perceived Behavioural Control (PBC)

The PBC refers to people’s perception on the extent to which they have both the required resources and the control over performing a behaviour (Fishbein and Ajzen, 2010). Analogous to the definition of attitude, PBC summarises control beliefs that are the degrees to which each control factor enables or prevents the performance of the behaviour, weighted by the subjective probability that the control factor exists (Ajzen, 2012).

Factors enabling or preventing the choice of a new store include car availability, health condition, time constraints, financial situation of the household, and shopping together with other persons (Bonfrer *et al.*, 2022; Marshall *et al.*, 2018; Mullis and Kim, 2011). However, whether these control factors enable or prevent the choice of the local store is often not pre-determined. Poor health, for instance, may prevent customers from driving or taking the bus to grocery stores elsewhere and thus determine the use of the local neighbourhood store. Moreover, poor health may prevent people from carrying groceries home, leading them to rely on family members or neighbours to drive them to a store other than the local neighbourhood store. Therefore, it is important to consider whether the control factors are perceived to be present and whether they enable, prevent, or have no influence on the store choice of a certain person.

2.4 Intention and behaviour

In the TPB, attitude, subjective norm, and PBC explain the behavioural intention. Intentions stated in surveys are often biased by social desirability, which is also the case here (see subjective norm). Meta-studies show that self-prediction, measured by the subjective likelihood of performing a behaviour, correlates more strongly with actual behaviour than asking people about their desires or intentions (Armitage and Conner, 2001; Sheppard *et al.*, 1988). In addition, the satisfaction with the status-quo of stores can serve as an indirect indicator for the intention to buy in a planned store, given that shopping satisfaction is a very good predictor of customer loyalty (Nam *et al.*, 2011; Loureiro *et al.*, 2014).

When applying the TPB on store choice, it is important to operationalize the respective behaviour. In the literature, researchers often asked whether or not a store was used (Pan and Zinkhan, 2006). However, evidence shows that customers use several stores. Smaller stores, such as neighbourhood stores, are often used only for top-up shopping with minor expenditures (Marshall *et al.*, 2018; Yokoyama *et al.*, 2022). Therefore, measuring the actual behaviour must account for the amount of groceries bought in the new store.

3. Data and methods

To empirically test our theoretical model, we selected two new neighbourhood store openings in rural Germany: one in the Bavarian village of Lützelburg and one in the Lower-Saxon village of Müden (see [Supplementary material appendix 1.pdf](#)). The selected store in Lützelburg is a community store established and funded by local citizens. The store's sales area is about 120 m² and the catchment area encompasses the 1,700 inhabitants of Lützelburg. The store in Müden is owned by a local entrepreneur in cooperation with a large retail group and is financially supported by local citizens. The store's sales area is about 300 m² and supplies 2,400 inhabitants in its catchment area, which comprises Müden and the adjacent village of Poitzen (200 inhabitants). Both stores were opened in 2019 and were subsidized by the European Agricultural Fund for Rural Development (EAFRD). Due to closures in previous years, these are the only grocery stores in their respective catchment areas. The rural contexts clearly delimitate the catchment areas and allow all potential customers to be surveyed. Comparing the two cases also enables us to draw conclusions that go beyond the local and conceptual specifics.

We employed a two-wave survey design for both case studies and collected data before and after the opening of the stores using postal household surveys. The person of the household who is usually responsible for the grocery shopping was asked to fill out the questionnaire. We used the tailored design method to develop and conduct the survey (Dillman *et al.*, 2014). We operationalized the constructs of the TPB presented in the previous section by applying example questions from Fishbein and Ajzen (2010). Several pre-tests were conducted with experts for content, survey method as well as statistics, followed by cognitive interviews with potential respondents. The questionnaires were then tested at another store opening with more than 500 completed questionnaires. The final questions and items used are shown in Table 1.

The survey of all households in the catchment areas started three months before the opening of the store in Lützelburg and two months before the opening in Müden. Because both stores were financed with citizens' capital, we assumed that the local population would be aware of the topic of the survey and that the willingness to answer the questionnaire would be correspondingly high. The second wave was conducted eight (Lützelburg) and twelve (Müden) months after the opening, allowing households to develop new shopping routines in accordance with the new offering. We surveyed all 655 households in Lützelburg and received 319 filled out questionnaires in the first and 263 in the second wave (response rate = 48.7% resp. 40.2%). In Müden, we distributed 1,029 questionnaires, of which 431 were returned in the first and 361 in the second wave (response rate = 41.9% resp. 35.1%). Using a code generated by the respondents themselves, we were able to link 304 questionnaires from the first and second wave (127 in Lützelburg and 177 in Müden). We thus connected beliefs about attitudes, subjective norms, and PBC as well as shopping intention from the first wave with the actual behaviour (self-reported) in the second wave at a microlevel.

To analyse the collected data, we used a structural equation model (SEM), which is the common method for testing the TPB (Fishbein and Ajzen, 2010). SEM tests whether a theoretical model fits the actual empirical data (Byrne, 2010). In addition, SEM allows the use of latent variables and the estimation of direct and indirect effects considering mediation processes. Further, we applied a multigroup analysis to integrate the data sets of both case studies. This allowed us to test the reliability of our measurement constructs and estimated effects (Byrne, 2010; Urban and Mayerl, 2013).

Table 1. Operationalisation of constructs and descriptive statistics in both study areas

Construct	Item/Question	Mean	Median	SD	N
<i>Evaluation of attributes</i>	<i>Many reasons can play a role in choosing a store. How important are the following attributes to you when choosing a store for purchasing everyday goods? Please answer the question using a scale with values from 0 to 6. A value of 0 means that these attributes are “not at all important” to you, a value of 6 means that they are “very important”</i>				
Importance of quality	High quality of goods	5.0	5	1.1	744
Importance of price level	Low prices	4.0	4	1.4	746
Importance of products on sale	Products on sale	3.5	4	1.7	743
Importance of service	Friendly staff	5.0	5	1.3	749
Importance of meeting place	Good opportunity to meet friends and acquaintances	2.2	2	1.8	741
Importance of one-stop shopping	Possibility to shop everything in one place	4.3	5	1.6	750
Importance of trip chains	Possibility to combine shopping with other activities (e.g. commuting, doctor’s visit, leisure activities)	3.1	3	2.0	749
Importance of proximity	Proximity to the place of residence	4.8	5	1.4	750
Importance of assortment	Wide range of goods	4.2	4	1.4	747
Importance of local products	Local products	4.6	5	1.4	732
<i>Probability of attributes</i>	<i>How likely do you think it is that the neighbourhood store [name of the village] will have the following attributes? Again, please use the scale with the values from 0 to 6. The value 0 means that you think it is “not at all likely” that the new store will have these features, the value 6 means that you think it is “very likely”. You can use the values in between to grade your estimate</i>				
Probability of quality	High quality of goods	4.7	5	1.1	754
Probability of low prices	Low prices	2.8	3	1.4	755
Probability of products on sale	Special offers	3.0	3	1.5	754
Probability of good service	Friendly staff	4.9	5	1.2	751
Probability of meeting place	Good opportunity to meet friends and acquaintances	3.8	4	1.7	747
Probability of one-stop shopping	Possibility to shop everything in one place	3.2	3	1.9	751
Probability to combine paths	Possibility to combine shopping with other activities (e. g., commuting, doctor’s visit, leisure activities)	2.1	2	2.0	751
Probability of proximity	Proximity to the place of residence	5.4	6	1.2	755
Probability of assortment	Wide range of goods	3.0	3	1.5	752
Probability of local products	Local products	4.8	5	1.3	754
<i>Perceived social pressure</i>	<i>When choosing a store, people are sometimes guided by the expectations that other people have of them. How important is it to you that you meet the expectations of the following people? (response scale from 0 “not at all important” to 6 “very important”)</i>				
Importance of family’s expectations	My family	3.3	4	2.3	754
Importance of friends’ expectations	My friends	2.0	2	1.9	747
Importance of other locals’ expectations	The other locals	1.6	1	1.9	749
<i>Expectation of referents</i>	<i>And how likely do you think it is that the following people will expect you to buy your everyday goods mainly at the new store? Again, please use the scale with the values from 0 to 6. 0 means that you think it is “not at all likely” that these people expect you to shop in the new store, 6 means that you think it is “very likely” that they expect you to shop in the new store</i>				

(continued)

Table 1. Continued

Construct	Item/Question	Mean	Median	SD	N
Probability of family's expectations	My family	2.4	2	2.1	752
Probability of friends' expectations	My friends	2.1	2	1.9	749
Probability of other locals' expectations	The other locals	3.0	3	2.1	750
<i>Probability of control factors</i>	<i>The following statements describe situations that may influence your choice of a store. For each statement, please indicate how often you find yourself in that situation. Again, please use the frequency scale with values from 0 to 6. A value of 0 means that you are "never" in this situation, the value 6 means that you are "always" in this situation</i>				
Probability of car availability	I have a car available for my shopping	5.5	6	1.4	755
Probability of health	My health restricts me from moving around or carrying shopping bags	1.0	0	1.7	751
Probability of financial constraints	I have very little money for shopping	1.9	2	1.9	750
Probability of time sovereignty	I can determine the time for shopping myself	5.1	6	1.4	754
Probability of shopping together	I shop together with other people	1.2	0	1.7	751
<i>Facilitating or inhibiting effect of control factors</i>	<i>And to what extent would these situations make you more likely or unlikely to shop at the new store? (response scale: 1 = more likely, 0 = no impact, -1 = more unlikely)</i>				
Importance of car availability	I have a car available for my shopping	0.1	0	0.5	746
Importance of health	My health restricts me from moving around or carrying shopping bags	0.4	0	0.6	737
Importance of financial constraints	I have very little money for shopping	-0.2	0	0.6	730
Importance of time sovereignty	I can determine the time for shopping myself	0.2	0	0.6	741
Importance of shopping together	I shop together with other people	0.1	0	0.5	732
<i>Probability of shopping in the new store</i>	<i>How likely is it that you will buy your daily goods mainly in the new neighbourhood store in [village]? Again, please use the scale with the values from 0 to 6. The value 0 means that you consider it "not at all likely" to shop mainly in the new store, the value 6 means, that you think it is "very likely"</i>				
<i>Satisfaction with shopping facilities</i>	<i>How satisfied are you at present, all in all, with your shopping opportunities for daily goods? Please use the scale with the values from 0 to 6. 0 means that you are "not at all satisfied" with your shopping opportunities for daily goods, the value 6 means that you are "completely satisfied"</i>				
<i>Actual shopping behaviour (after the opening of the new store)</i>	<i>How many of your daily goods do you usually buy at the following retailers? Please use the scale with the values from 0 to 6. The value 0 means that you buy "nothing" at a retailer, the value 6 means that you buy "everything" there</i>				
Purchase in the neighbourhood store	Neighbourhood store [name]	2.9	3	1.4	605

Source(s): Authors' own work

The assumptions for standard SEM with maximum likelihood estimation are not met as the variables are not multivariate normally distributed (Lei and Wu, 2012). Therefore, we employed a Bayesian SEM implemented via a Markov Chain Monte Carlo (MCMC) algorithm (Metropolis) to our data, as provided by the AMOS software (Arbuckle, 2016). Such estimations provide further advantages when dealing with relatively small sample sizes and missing data (Lee, 2007; Song and Lee, 2012).

The standard TPB uses a summative index to aggregate the beliefs (subjective evaluation*probability of an aspect of the behaviour – see [Supplementary_material_appendix_2.pdf](#)) in order to indirectly measure attitude, subjective norm, and PBC (Fishbein and Ajzen, 2010). In contrast, we built composites (Grace and Bollen, 2008) with the beliefs as suggested by Hennessy *et al.* (2012). This enabled us to include only those beliefs that have a significant positive effect on the intention to buy in the new store in at least one case study. Furthermore, we were able to estimate the effect of each belief on both the intention and on the actual behaviour by calculating the indirect effects. Using the multigroup analysis, we could also test whether the estimates differ between the cases. Therefore, we iteratively compared the fit (determined by DIC) of models that estimate each coefficient for each group (case) separately with those models that estimate the coefficient common to both groups (Song and Lee, 2012, p. 143). This has led us to choose the model with the best fit.

4. Results

In what follows, we present the results of our empirical analysis in two steps. First, we describe the two samples and test the measurement models in preparation for building the structural model. This step led to the elimination of beliefs irrelevant for explaining behavioural intention. Second, we present the results of the structural model and show the effects of the different factors on intention and behaviour.

4.1 Descriptive statistic and preparation for modelling

Starting with demographics, the average age of the respondents is 58 years in both study areas, with more than a third being retired (approx. 36% in both areas). 60% of the respondents in Lützelburg and 65% in Müden are women, indicating that they are more often responsible for purchasing daily goods in the household and were therefore asked to answer the questionnaire. On average, 2.6 persons live in a household in Lützelburg and 2.2 persons in Müden. Concerning the financial situation, the median income of the responding households in Lützelburg lies in the class between 3,000 to 3,500 Euro; in Müden the median income is situated in a lower class between 2,500 to 3,000 Euro.

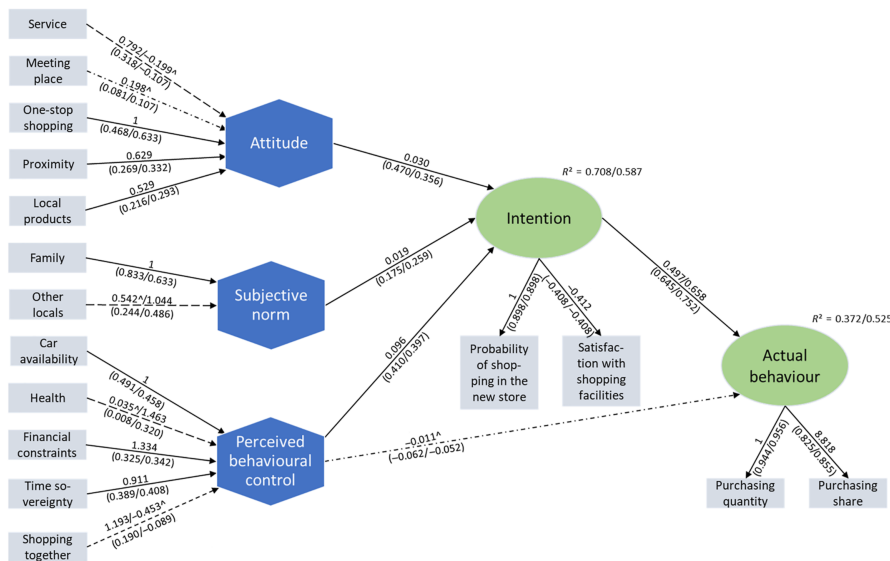
Table 1 shows the descriptive statistics of the items relevant for the model. Concerning the evaluation of different attributes of the grocery stores, the data shows that quality, service, and proximity are most important. The expected attributes concerning the new store reflect the general perception of small stores (Jürgens, 2020; Yokoyama *et al.*, 2022): convenient location, but a high price level. With regard to subjective norm, respondents mostly anticipated that other locals expect them to shop in the new store, while this group is least important as a reference for their buying behaviour compared to family and friends. The queried control factors are either present or absent, with little gradation in between. Moreover, most respondents answered that the factors neither facilitate nor inhibit them to shop in the new store. Respondents most strongly expect that personal health restrictions would lead them to shop locally. Even though the responding consumers tend to be more satisfied with their shopping opportunities, most respondents answered that using the new store mainly for their daily shopping is rather probable. However, the survey carried out after the store's opening reveals that, on average, less than half of daily goods are bought in the new store.

For the structural equation model, we used the collected data to calculate the variables measuring beliefs in relation to attitude, subjective norm, and PBC (as described in [Section 2](#)).

The descriptive statistics for all variables used in both cases are presented in [Supplementary material appendix 1.pdf](#). In preparation for the structural modelling, we tested the validity of our latent variables. Firstly, we tested the measurement model for intention and actual behaviour ([Supplementary material appendix 3.pdf](#)). The results indicate a good model fit (posterior predictive $p = 0.49$), sufficient standardized factor loadings (>0.4), and the possibility to restrict loadings, error variances, and factor variances among the two groups ([Urban and Mayerl, 2013](#), pp. 224–225). Secondly, we evaluated the indicators of the composites by calculating the model without the composites. We iteratively eliminated those indicators with no positive and probable (90%-CI $\neq 0$) effect on the intention (external validity according to [Bollen, 2011](#), pp. 361–362). This applied to the attitudinal beliefs about quality, price level, products on sale, trip chains, and assortment. Concerning the subjective norm, the variable “friends” was also eliminated for this reason, but for the PBC all variables were included in the model.

4.2 Modelling the shopping intention and choice of the new store

The structural equation model allows us to test our theoretical model based on TPB and literature related to store choice (see [Section 2](#)). In addition, we can compare both case study areas using a two-group model, which shows the effects that apply to only one or both cases. The result is depicted in [Figure 2](#). Posterior predictive p amounts to 0.50 and indicates a good fit of the theoretical model to the data. The model shows that attitude, subjective norm, and PBC explain the intention to shop in the new store to a large extent in both cases ($R^2 = \text{ca. } 0.7$ and 0.6). The intention, in turn, also explains the actual shopping behaviour in the new store



Note(s):

Values on the left for Lützelburg, right for Müden

One unstandardised effect: equality constraint across groups

Standardised coefficients in parentheses

^ = unlikely effect (90% credibility interval includes 0)

Model fit: convergence statistic < 1.005 ; posterior predictive $p = 0.50$

Source(s): Authors' own work

Figure 2. Estimated model to explain actual shopping in the new store with factors collected before its opening

very good; in Müden even better than in Lützelburg. However, the PBC does not contribute to the explanation of the actual behaviour, which was to expected according to the TPB.

In terms of attitude towards shopping in the new store, we can conclude that one-stop shopping is the most important belief, followed by proximity to one's home and availability of local products. Service plays a relatively large role only in Lützelburg, while this effect is not credible in Müden. The preparatory analysis showed that the belief about the meeting point function had a probable effect on the attitude in Müden. The group analysis, however, supports a cross-case consideration, which makes the effect less probable, although positive. For the subjective norm, family plays the central role, with the other locals in Müden exerting a comparable (unstandardized) effect. This reference group does not play a likely role in Lützelburg. In both cases, the PBC is significantly influenced by financial constraints, followed by car availability, and time sovereignty. Health constraints are a very important and probable influence only in Müden and shopping with others only in Lützelburg.

The attitude toward shopping in the new store and the PBC have an approximately similar influence on the intention to shop in the new store (due to the different scales in the compositions, the standardised effects must be taken into account). The influence of the subjective norm is smaller, but still likely. Furthermore, these effects are the same in both case study areas. In contrast, the effects of intention on actual purchases in the new store differ significantly between the two cases. However, the effects are strongly positive in both cases, as expected.

The use of the SEM makes it possible to examine indirect and total effects in addition to direct effects. [Table 2](#) shows the direct effects of the input variables on the composites as well as the indirect effects on intention and actual behaviour. It shows that the credible direct effects also lead to credible indirect effects (the 90% credibility interval is above 0). Since the indirect effects result from multiplying the direct effects along the path, beliefs about one-stop shopping, expectations by family, and car availability have the largest indirect effect on intention and actual behaviour. As [Figure 2](#) shows, the direct effect of PBC on actual behaviour is slightly negative, but unlikely. However, the total effect is still 0.037 (standardized: 0.203) and credible (90% CI: 0.015, 0.060).

5. Discussion

At the outset of the paper, we noted that current practices for forecasting the use of planned neighbourhood stores involve a significant degree of intuition. This suggests that there are shortcomings in the theoretical understanding of these practices and that further development of existing models is warranted. With this in mind, our research question was: which factors can be used to predict the choice of a new neighbourhood store before it opens? Using two case studies, we demonstrated that the Theory of Planned Behaviour (TPB) allows the development of a corresponding model. By taking into account attitude towards shopping at the new store, subjective norm, and Perceived Behavioural Control (PBC), our model can explain the intention to shop at the new store and, ultimately, the actual shopping behaviour. The estimated effect sizes and variance explanations are comparable to or even better than previous applications of the TPB in other fields ([Ajzen, 2012](#); [Armitage and Conner, 2001](#)). Taken together, our results demonstrate that the TPB is well suited for predicting the choice of a new neighbourhood store.

The attitudinal beliefs largely correspond to factors that have already been widely used in analyses of shopping behaviour. These approaches are based on multi-attribute utility theory ([Wallenius *et al.*, 2008](#); [Yokoyama *et al.*, 2022](#)). Our analysis shows that many of the factors that were previously thought to be relevant were not important, at least in the two cases under study. These factors include: quality, price level, products on sale, trip chains, and assortment. It must be noted, though, that the belief about local products, which was identified as important, constitutes a partial aspect of quality. A recent meta-analysis of the effect of assortment on sales shows that the impact diminishes for functional products with high purchase frequency, such as many grocery items, and, due to a concave elasticity, for small stores with low assortment ([Sethuraman *et al.*, 2022](#)). Price level and special offers, which were also excluded from our

Table 2. Direct effects of beliefs on attitude, subjective norm, and Perceived Behavioural Control (PBC) and indirect effects on intention and actual behaviour, incl. credibility intervals

Variables	Case study area	Direct effect on attitude		Indirect effect on intention		Indirect effect on actual behaviour	
		Effect	90%-credibility interval	Effect	90%-credibility interval	Effect	90%-credibility interval
Service	Lützelburg	0.792 (0.318)	0.349, 1.297 (0.160, 0.471)	0.023 (0.146)	0.011, 0.036 (0.070, 0.223)	0.011 (0.094)	0.005, 0.019 (0.043, 0.153)
	Müden	-0.199 (-0.107)	-0.633, 0.239 (-0.336, 0.113)	-0.006 (-0.036)	-0.018, 0.007 (-0.111, 0.040)	-0.004 (-0.027)	-0.013, 0.004 (-0.087, 0.030)
Meeting place	Lützelburg	0.198 (0.081)	-0.113, 0.531 (-0.053, 0.203)	0.006 (0.038)	-0.003, 0.014 (-0.023, 0.095)	0.003 (0.024)	-0.002, 0.008 (-0.015, 0.065)
	Müden	0.198 (0.107)	-0.113, 0.531 (-0.067, 0.270)	0.006 (0.037)	-0.003, 0.014 (-0.023, 0.095)	0.004 (0.028)	-0.002, 0.010 (-0.017, 0.072)
One-stop shopping	Lützelburg	1.000 (0.468)	- (0.359, 0.596)	0.030 (0.214)	0.023, 0.040 (0.160, 0.284)	0.015 (0.139)	0.010, 0.022 (0.089, 0.201)
	Müden	1.000 (0.633)	- (0.506, 0.774)	0.030 (0.221)	0.023, 0.040 (0.166, 0.293)	0.020 (0.167)	0.014, 0.028 (0.116, 0.230)
Proximity	Lützelburg	0.629 (0.269)	0.298, 1.015 (0.143, 0.400)	0.018 (0.123)	0.010, 0.027 (0.065, 0.182)	0.009 (0.079)	0.004, 0.014 (0.039, 0.125)
	Müden	0.629 (0.332)	0.298, 1.015 (0.178, 0.492)	0.018 (0.115)	0.010, 0.027 (0.061, 0.171)	0.012 (0.087)	0.006, 0.019 (0.044, 0.134)
Local products	Lützelburg	0.529 (0.216)	0.217, 0.877 (0.096, 0.338)	0.016 (0.099)	0.007, 0.024 (0.043, 0.157)	0.008 (0.064)	0.003, 0.013 (0.026, 0.108)
	Müden	0.529 (0.293)	0.217, 0.877 (0.133, 0.453)	0.016 (0.102)	0.007, 0.024 (0.045, 0.160)	0.010 (0.077)	0.004, 0.016 (0.033, 0.124)
Variables	Case study area	Direct effect on subjective norm		Indirect effect on intention		Indirect effect on actual behaviour	
		Effect	90%-credibility interval	Effect	90%-credibility interval	Effect	90%-credibility interval
Family	Lützelburg	1.000 (0.833)	- (0.538, 1.086)	0.019 (0.135)	0.011, 0.028 (0.076, 0.199)	0.009 (0.087)	0.005, 0.015 (0.045, 0.138)
	Müden	1.000 (0.633)	- (0.385, 0.880)	0.019 (0.149)	0.011, 0.028 (0.083, 0.217)	0.013 (0.112)	0.007, 0.019 (0.061, 0.171)
Other locals	Lützelburg	0.542 (0.244)	-0.408, 1.690 (-0.316, 0.645)	0.009 (0.045)	-0.008, 0.025 (-0.040, 0.125)	0.004 (0.029)	-0.004, 0.012 (-0.026, 0.081)
	Müden	1.044 (0.486)	0.258, 2.236 (0.193, 0.736)	0.018 (0.116)	0.006, 0.029 (0.040, 0.187)	0.011 (0.087)	0.004, 0.019 (0.029, 0.144)
Variables	Case study area	Direct effect on PBC		Indirect effect on intention		Indirect effect on actual behaviour	
		Effect	90%-credibility interval	Effect	90%-credibility interval	Effect	90%-credibility interval
Car availability	Lützelburg	1.000 (0.491)	- (0.361, 0.622)	0.096 (0.202)	0.067, 0.127 (0.141, 0.268)	0.037 (0.100)	0.015, 0.060 (0.043, 0.161)
	Müden	1.000 (0.458)	- (0.334, 0.587)	0.096 (0.182)	0.067, 0.127 (0.128, 0.239)	0.052 (0.113)	0.028, 0.078 (0.062, 0.168)
Health	Lützelburg	0.035 (0.008)	-0.714, 0.754 (-0.175, 0.178)	0.004 (0.004)	-0.065, 0.070 (-0.070, 0.075)	0.001 (0.002)	-0.026, 0.029 (-0.037, 0.040)
	Müden	1.463 (0.320)	0.654, 2.457 (0.156, 0.479)	0.137 (0.128)	0.063, 0.212 (0.059, 0.198)	0.074 (0.080)	0.028, 0.128 (0.030, 0.136)
Financial constraints	Lützelburg	1.334 (0.325)	0.736, 2.038 (0.211, 0.439)	0.124 (0.133)	0.079, 0.169 (0.085, 0.181)	0.047 (0.066)	0.019, 0.080 (0.027, 0.110)
	Müden	1.334 (0.342)	0.736, 2.038 (0.221, 0.463)	0.124 (0.136)	0.079, 0.169 (0.086, 0.187)	0.067 (0.084)	0.034, 0.104 (0.043, 0.131)

(continued)

Table 2. Continued

Variables	Case study area	Direct effect on PBC		Indirect effect on intention		Indirect effect on actual behaviour	
		Effect	90%-credibility interval	Effect	90%-credibility interval	Effect	90%-credibility interval
Time sovereignty	Lützelburg	0.911 (0.389)	0.478, 1.493 (0.252, 0.529)	0.084 (0.159)	0.053, 0.115 (0.100, 0.220)	0.032 (0.079)	0.012, 0.055 (0.032, 0.135)
	Müden	0.911 (0.408)	0.478, 1.493 (0.265, 0.549)	0.084 (0.162)	0.053, 0.115 (0.102, 0.224)	0.046 (0.101)	0.022, 0.072 (0.050, 0.159)
Shopping together	Lützelburg	1.193 (0.190)	0.054, 2.486 (0.009, 0.363)	0.111 (0.079)	0.005, 0.215 (0.004, 0.153)	0.041 (0.038)	0.001, 0.091 (0.001, 0.084)
	Müden	-0.453 (-0.089)	-1.452, 0.475 (-0.278, 0.089)	-0.042 (-0.035)	-0.129, 0.044 (-0.107, 0.036)	-0.024 (-0.022)	-0.078, 0.022 (-0.073, 0.021)

Note(s): Standardized values in parentheses
Source(s): Authors' own work

model as irrelevant, are presumably reflected in PBC-related beliefs about financial constraints. Moreover, a recent review article indicates an ambiguous effect of price on store format choice (Bonfrer *et al.*, 2022), and the expectations about the price level in neighbourhood stores are particularly low (Yokoyama *et al.*, 2022). The meta-analysis of Liu-Thompkins *et al.* (2022) confirms a decreasing effect of price (and assortment) on retailer loyalty over the last 50 years.

Furthermore, it is noticeable that the effect of subjective norm on intention, and therefore on actual behaviour, is smaller than that of attitude and PBC. As meta-analyses show, this is rather normal for models built on TPB (Armitage and Conner, 2001, p. 481). A further reason for this may be that we did not apply the extension of the TPB to the Reasoned Action Approach (RAA) (Fishbein and Ajzen, 2010), as we have only considered the injunctive norm and not the descriptive norm. While the injunctive norm measures perceived expectations by relevant others, the descriptive norm captures the observed behaviour of social referents. Including the descriptive norm in a model (alongside attitude, injunctive norm, and PBC) increases the proportion of variance explained in intention by an average of 5% (Ajzen, 2012, p. 17). However, since shopping by reference persons in a store that has not yet opened cannot be observed, it was not possible to collect the descriptive norm before the store opened. Therefore, only the injunctive norm could be included in our model, which may contribute to the smaller effect of the subjective norm.

Similar to the descriptive norm, affective attributes, which are often considered to be critical to store loyalty (Liu-Thompkins *et al.*, 2022), could not be measured. Respondents are not able to evaluate aspects such as atmosphere, image or design of a store that does not yet exist. Therefore, this potentially important dimension is missing from our model, which nevertheless explains a high proportion of the variance in shopping behaviour.

As expected, PBC has an important effect on the intention to shop at a new store. However, there is no direct effect on the actual behaviour, so the effect is perfectly mediated by intention. The meta-analysis by Armitage and Conner (2001, pp. 483–484) shows that there is a significant direct effect (0.40) on average, but it only increases the variance explained by intention alone by 2% and is thus almost negligible. Here, PBC can hardly serve as a proxy for actual behavioural control. Even though control factors, such as car availability, health status, or financial situation are unlikely to change within such a short period of time, the subjective evaluation of the factors in terms of their enabling or preventing influence on shopping at the new store appears to be potentially shaped by social desirability. The descriptive analysis shows, for example, that many respondents assume that the availability of a car either has no influence or a positive influence on shopping at the local store. In contrast, existing research, particularly in rural contexts, indicate that the availability of a car increases the possibility of out-shopping in larger and thus more attractive stores located further away (Christiaanse and Haartsen, 2017; Jürgens, 2020; Marshall *et al.*, 2018).

The limitation of our study to two cases and the presumably selective response behaviour in favour of those personally impacted affect the representativity of our results. However, we assume that the strategic selection of strongly varying cases and the high response rate ensure a certain degree of representativeness. As always in Bayesian statistics, the results only ever apply to existing data, i.e. the respondents. An advantage of Bayesian structural equation modelling is that the model is empirically identified even when n is small. Although the overall internal validity of the measurement model is good, the intention loads low on the satisfaction with existing shopping facilities. Nonetheless, the consistency between both groups supports the validity of this measurement model as well as the external validity due to the high effect of intention on behaviour, as expected according to the TPB. We adhere to the construct of intention because it helps to correct for measurement errors that inevitably arise from questionnaire surveys.

In total, only four of the 21 estimated effects had to be estimated separately for the two cases, indicating a certain reliability of the model. Nevertheless, additional cases should be examined in order to further substantiate the model and, if necessary, to explain local specificities. For example, it could be hypothesized that the effect of other locals on the subjective norm was likely in Müden and not in Lützelburg because Müden's status as a health resort depends on the presence of a grocery store. Another avenue for further research is offered by the larger effect of intention on behaviour in Müden. A hypothesis to test could be that the sales area in Müden is larger than in Lützelburg, therefore making it easier to fulfil the customers' expectations in the sense of the expectation disconfirmation model (Yokoyama *et al.*, 2022) or loss aversion (Goić *et al.*, 2021). Further research could, for example, establish whether the belief about price level is not a relevant explanatory factor for attitudes in other cases when real income is much lower. Therefore, we would welcome replication studies in low-income situations as well as for other store formats and urban contexts where competition is more intense (Çakır *et al.*, 2020) and thus quality, price, and assortment may play a significant role.

6. Conclusion

Our study advances the scientific debate on store choice forward in three ways. First, we develop a model to predict the expenditure in a new neighbourhood store before its opening. To our knowledge, this is the first time that the TPB has been applied to store choice. Our study stands out by testing the model using a two-wave survey, which enables us to chronologically separate cause and effect. Second, we demonstrate how attitude, subjective norm, and PBC can be measured indirectly, thus avoiding a tautologic correlation between the direct measure of these constructs on the one hand and intention on the other. By using composites rather than a summative index to measure these constructs, we can specify the relevant beliefs and their impact on intention and actual behaviour. Third, our model contributes to the discussion on the importance of social interactions, which Liu-Thompkins *et al.* (2022) have recently proposed as a promising research direction. Our contribution integrates service (employee-customer), meeting places and shopping together (customer-to-customer), and social pressure.

Our results have three main practical implications. First, retail companies could use our model and our items to develop more realistic sales forecasts. Therefore, we would recommend testing our model with an "objective" measure of actual behaviour using, e.g. rewards apps over a longer period of time. Planning authorities could also require more serious profitability calculations based on our model. The EAFRD could fund such surveys as preparatory studies for rural neighbourhood stores, which would otherwise be too costly for small retailers to carry out. Second, the results indicate the potential levers that companies have at their disposal to increase purchasing power retention. Accordingly, retailers should select easily accessible locations that are, for example, located on main thoroughfares in village centres and have sufficient parking spaces. They should preferably offer a wide range of products, including local products, rather than a deep range and premium or discount products.

They should also pay staff well to keep them motivated and friendly. Conversely, they should not offer gastronomic services as meeting points.

However, a systemic consideration of these attributes in the context of subjective norms and PBC also reveals the limitations of such strategies. Beliefs about PBC, in contrast to those about store attributes, can hardly be influenced directly, so that, thirdly, communication strategies might be used primarily to increase the perceived social pressure. In order to identify suitable action approaches, there is a need for future intervention studies (Fishbein and Ajzen, 2010) that demonstrate the effects of, for example, communication and participation measures in the planning phase before a store opening on beliefs and thus on purchasing behaviour.

References

- Addis, R.A. and Grünhagen, M. (2014), "The influence of social identity on rural consumers' intent to shop locally", *New England Journal of Entrepreneurship*, Vol. 17 No. 1, pp. 7-14, doi: [10.1108/neje-17-01-2014-b001](https://doi.org/10.1108/neje-17-01-2014-b001).
- Agergård, E., Olsen, P.A. and Allpass, J. (1970), "The interaction between retailing and the urban centre structure: a theory of spiral movement", *Environment and Planning A*, Vol. 2 No. 1, pp. 55-71.
- Ajzen, I. (1991), "The theory of planned behavior", *Organizational Behavior and Human Decision Processes*, Vol. 50 No. 2, pp. 179-211, doi: [10.1016/0749-5978\(91\)90020-t](https://doi.org/10.1016/0749-5978(91)90020-t).
- Ajzen, I. (2012), "Martin Fishbein's legacy: the reasoned action approach", *The Annals of the American Academy of Political and Social Science*, Vol. 640 No. 1, pp. 11-27, doi: [10.1177/0002716211423363](https://doi.org/10.1177/0002716211423363).
- Anand, K.S. and Sinha, P.K. (2009), "Store format choice in an evolving market: role of affect, cognition and involvement", *The International Review of Retail, Distribution and Consumer Research*, Vol. 19 No. 5, pp. 505-534, doi: [10.1080/09593960903445376](https://doi.org/10.1080/09593960903445376).
- Arbuckle, J. (2016), "IBM SPSS Amos 24 user's guide", available at: http://www.csun.edu/itr/downloads/docs/IBM_SPSS_Amos_User_GuideV24.pdf (accessed 13 February 2023).
- Armitage, C.J. and Conner, M. (2001), "Efficacy of the theory of planned behaviour: a meta-analytic review", *British Journal of Social Psychology*, Vol. 40 No. 4, pp. 471-499, doi: [10.1348/014466601164939](https://doi.org/10.1348/014466601164939).
- Bollen, K.A. (2011), "Evaluating effect, composite, and causal indicators in structural equation models", *MIS Quarterly*, Vol. 35 No. 2, pp. 359-372, doi: [10.2307/23044047](https://doi.org/10.2307/23044047).
- Bonfrer, A., Chintagunta, P. and Dhar, S. (2022), "Retail store formats, competition and shopper behavior: a systematic review", *Journal of Retailing*, Vol. 98 No. 1, pp. 71-91, doi: [10.1016/j.jretai.2022.02.006](https://doi.org/10.1016/j.jretai.2022.02.006).
- Broadbridge, A. and Calderwood, E. (2002), "Rural grocery shoppers: do their attitudes reflect their actions?", *International Journal of Retail and Distribution Management*, Vol. 30 No. 8, pp. 394-406, doi: [10.1108/09590550210435282](https://doi.org/10.1108/09590550210435282).
- Byrne, B.M. (2010), *Structural Equation Modeling with AMOS: Basic Concepts, Applications, and Programming (Multivariate Applications Series)*, Taylor & Francis, New York, NY.
- Çakır, M., Kong, X., Cho, C. and Stevens, A. (2020), "Rural food retailing and independent grocery retailer exits", *American Journal of Agricultural Economics*, Vol. 102 No. 5, pp. 1352-1367, doi: [10.1111/ajae.12131](https://doi.org/10.1111/ajae.12131).
- Christiaanse, S. and Haartsen, T. (2017), "The influence of symbolic and emotional meanings of rural facilities on reactions to closure: the case of the village supermarket", *Journal of Rural Studies*, Vol. 54 No. Supplement C, pp. 326-336, doi: [10.1016/j.jrurstud.2017.07.005](https://doi.org/10.1016/j.jrurstud.2017.07.005).
- Dillman, D.A., Smyth, J.D. and Christian, L.M. (2014), *Internet, Phone, Mail, and Mixed-Mode Surveys: The Tailored Design Method*, Wiley, Hoboken, NJ.
- Faria, S., Carvalho, J.M.S. and Vale, V.T. (2022), "Service quality and store design in retail competitiveness", *International Journal of Retail and Distribution Management*, Vol. 50 No. 13, pp. 184-199, doi: [10.1108/ijrdm-01-2022-0005](https://doi.org/10.1108/ijrdm-01-2022-0005).

- Fildes, R., Ma, S. and Kolassa, S. (2022), "Retail forecasting: research and practice", *International Journal of Forecasting*, Vol. 38 No. 4, pp. 1283-1318, doi: [10.1016/j.ijforecast.2019.06.004](https://doi.org/10.1016/j.ijforecast.2019.06.004).
- Fishbein, M. and Ajzen, I. (1975), *Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Research*, Addison-Wesley, Reading, MA.
- Fishbein, M. and Ajzen, I. (2010), *Predicting and Changing Behavior: The Reasoned Action Approach*, Psychology Press, New York, NY.
- Goić, M., Levenier, C. and Montoya, R. (2021), "Drivers of customer satisfaction in the grocery retail industry: a longitudinal analysis across store formats", *Journal of Retailing and Consumer Services*, Vol. 60, 102505, doi: [10.1016/j.jretconser.2021.102505](https://doi.org/10.1016/j.jretconser.2021.102505).
- Goodman, S. and Remaud, H. (2015), "Store choice: how understanding consumer choice of 'where' to shop may assist the small retailer", *Journal of Retailing and Consumer Services*, Vol. 23, pp. 118-124, doi: [10.1016/j.jretconser.2014.12.008](https://doi.org/10.1016/j.jretconser.2014.12.008).
- Grace, J.B. and Bollen, K.A. (2008), "Representing general theoretical concepts in structural equation models: the role of composite variables", *Environmental and Ecological Statistics*, Vol. 15 No. 2, pp. 191-213, doi: [10.1007/s10651-007-0047-7](https://doi.org/10.1007/s10651-007-0047-7).
- Hennessy, M., Bleakley, A. and Fishbein, M. (2012), "Measurement models for reasoned action theory", *The Annals of the American Academy of Political and Social Science*, Vol. 640 No. 1, pp. 42-57, doi: [10.1177/0002716211424709](https://doi.org/10.1177/0002716211424709).
- Hernández, T. and Bennison, D. (2000), "The art and science of retail location decisions", *International Journal of Retail and Distribution Management*, Vol. 28 No. 8, pp. 357-367, doi: [10.1108/09590550010337391](https://doi.org/10.1108/09590550010337391).
- Huff, D.L. (1963), "A probabilistic analysis of shopping center trade areas", *Land Economics*, Vol. 39 No. 1, pp. 81-90, doi: [10.2307/3144521](https://doi.org/10.2307/3144521).
- Jürgens, U. (2020), "Food retail in the rural periphery using the example of Germany: identifying success factors", in Soares, A.M. and Elmashhara, M.G. (Eds), *Emotional, Sensory, and Social Dimensions of Consumer Buying Behavior*, IGI Global, Hershey, PA, pp. 270-298.
- Khawaldah, H., Birkin, M. and Clarke, G. (2012), "A review of two alternative retail impact assessment techniques: the case of Silverburn in Scotland", *The Town Planning Review*, Vol. 83 No. 2, pp. 233-260, doi: [10.3828/tpr.2012.13](https://doi.org/10.3828/tpr.2012.13).
- Lee, S.-Y. (2007), *Structural Equation Modeling. A Bayesian Approach*, Wiley, Chichester.
- Lei, P.W. and Wu, Q. (2012), "Estimation in structural equation modeling", in Hoyle, R.H. (Ed.), *Handbook of Structural Equation Modelling*, Guilford press, Suite, NY, pp. 164-180.
- Liu-Thompkins, Y., Khoshghadam, L., Shoushtari, A.A. and Zal, S. (2022), "What drives retailer loyalty? A meta-analysis of the role of cognitive, affective, and social factors across five decades", *Journal of Retailing*, Vol. 98 No. 1, pp. 92-110, doi: [10.1016/j.jretai.2022.02.005](https://doi.org/10.1016/j.jretai.2022.02.005).
- Loureiro, S.M.C., Miranda, F.J. and Breazeale, M. (2014), "Who needs delight? the greater impact of value, trust and satisfaction in utilitarian, frequent-use retail", *Journal of Service Management*, Vol. 25 No. 1, pp. 101-124, doi: [10.1108/JOSM-06-2012-0106](https://doi.org/10.1108/JOSM-06-2012-0106).
- Marshall, D. (2019), "Convenience stores and well-being of young Japanese consumers", *International Journal of Retail and Distribution Management*, Vol. 47 No. 6, pp. 590-604, doi: [10.1108/ijrdm-08-2017-0182](https://doi.org/10.1108/ijrdm-08-2017-0182).
- Marshall, D., Dawson, J. and Nisbet, L. (2018), "Food access in remote rural places: consumer accounts of food shopping", *Regional Studies*, Vol. 52 No. 1, pp. 133-144, doi: [10.1080/00343404.2016.1275539](https://doi.org/10.1080/00343404.2016.1275539).
- Maruyama, M. and Wu, L. (2014), "Multiple store patronage: the effects of store characteristics", *Journal of Retailing and Consumer Services*, Vol. 21 No. 4, pp. 601-609, doi: [10.1016/j.jretconser.2014.04.009](https://doi.org/10.1016/j.jretconser.2014.04.009).
- Miller, N.J. and Kean, R.C. (1997), "Factors contributing to inshopping behavior in rural trade areas: implications for local retailers", *Journal of Small Business Management*, Vol. 35 No. 2, pp. 80-94.
- Mullis, K. and Kim, M. (2011), "Factors determining inshopping in rural US communities", *International Journal of Retail and Distribution Management*, Vol. 39 No. 5, pp. 326-345, doi: [10.1108/09590551111130757](https://doi.org/10.1108/09590551111130757).

- Nair, S.R. (2018), "Analyzing the relationship between store attributes, satisfaction, patronage-intention and lifestyle in food and grocery store choice behavior", *International Journal of Retail and Distribution Management*, Vol. 46 No. 1, pp. 70-89, doi: [10.1108/ijrdm-06-2016-0102](https://doi.org/10.1108/ijrdm-06-2016-0102).
- Nam, J., Ekinci, Y. and Whyatt, G. (2011), "Brand equity, brand loyalty and consumer satisfaction", *Annals of Tourism Research*, Vol. 38 No. 3, pp. 1009-1030, doi: [10.1016/j.annals.2011.01.015](https://doi.org/10.1016/j.annals.2011.01.015).
- Oeser, G., Aygün, T., Balan, C.-L., Paffrath, R. and Schuckel, M.T. (2019), "Segmenting elder German grocery shoppers based on shopping motivations", *International Journal of Retail and Distribution Management*, Vol. 47 No. 2, pp. 129-156, doi: [10.1108/ijrdm-02-2018-0033](https://doi.org/10.1108/ijrdm-02-2018-0033).
- Oldenburg, R. (1999), *The Great Good Place*, Marlowe, New York, NY.
- Pan, Y. and Zinkhan, G.M. (2006), "Determinants of retail patronage: a meta-analytical perspective", *Journal of Retailing*, Vol. 82 No. 3, pp. 229-243, doi: [10.1016/j.jretai.2005.11.008](https://doi.org/10.1016/j.jretai.2005.11.008).
- Pioch, E. and Byrom, J. (2004), "Small independent retail firms and locational decision-making: outdoor leisure retailing by the crags", *Journal of Small Business and Enterprise Development*, Vol. 11 No. 2, pp. 222-232, doi: [10.1108/14626000410537164](https://doi.org/10.1108/14626000410537164).
- Runyan, R.C. and Droge, C. (2008), "A categorization of small retailer research streams: what does it portend for future research?", *Journal of Retailing*, Vol. 84 No. 1, pp. 77-94, doi: [10.1016/j.jretai.2008.01.003](https://doi.org/10.1016/j.jretai.2008.01.003).
- Satyam, S., Aithal, R.K. and Pradhan, D. (2022), "Resilience of an evolved retail agglomeration: case of rural periodic markets in emerging economies", *International Journal of Retail and Distribution Management*, Vol. 50 No. 11, pp. 1395-1411, doi: [10.1108/ijrdm-09-2021-0423](https://doi.org/10.1108/ijrdm-09-2021-0423).
- Sethuraman, R., Gázquez-Abad, J.C. and Martínez-López, F.J. (2022), "The effect of retail assortment size on perceptions, choice, and sales: review and research directions", *Journal of Retailing*, Vol. 98 No. 1, pp. 24-45, doi: [10.1016/j.jretai.2022.01.001](https://doi.org/10.1016/j.jretai.2022.01.001).
- Sheppard, B.H., Hartwick, J. and Warshaw, P.R. (1988), "The theory of reasoned action: a meta-analysis of past research with recommendations for modifications and future research", *Journal of Consumer Research*, Vol. 15 No. 3, pp. 325-343, doi: [10.1086/209170](https://doi.org/10.1086/209170).
- Song, X.Y. and Lee, S.Y. (2012), *Basic and Advanced Bayesian Structural Equation Modeling with Applications in the Medical and Behavioral Sciences*, Wiley, Chichester.
- Urban, D. and Mayerl, J. (2013), *Strukturgleichungsmodellierung: ein Ratgeber für die Praxis*, Springer, Wiesbaden.
- Wallenius, J., Dyer, J.S., Fishburn, P.C., Steuer, R.E., Zionts, S. and Deb, K. (2008), "Multiple criteria decision making, multiattribute utility theory: recent accomplishments and what lies ahead", *Management Science*, Vol. 54 No. 7, pp. 1336-1349, doi: [10.1287/mnsc.1070.0838](https://doi.org/10.1287/mnsc.1070.0838).
- Wilkinson, P.D.J. (2023), *Spatial Interaction Models in a Big Data Grocery Retailing Environment*, UCL, London.
- Wood, S. and Browne, S. (2007), "Convenience store location planning and forecasting – a practical research agenda", *International Journal of Retail and Distribution Management*, Vol. 35 No. 4, pp. 233-255, doi: [10.1108/09590550710736184](https://doi.org/10.1108/09590550710736184).
- Yokoyama, N., Azuma, N. and Kim, W. (2022), "Moderating effect of customer's retail format perception on customer satisfaction formation: an empirical study of mini-supermarkets in an urban retail market setting", *Journal of Retailing and Consumer Services*, Vol. 66, 102935, doi: [10.1016/j.jretconser.2022.102935](https://doi.org/10.1016/j.jretconser.2022.102935).
- Zhao, Y., Zhao, X. and Liu, Y. (2023), "How brick-and-mortar retailers and grocery delivery platforms influence purchase intention?", *International Journal of Retail and Distribution Management*, Vol. 51 No. 12, pp. 1677-1697, doi: [10.1108/ijrdm-02-2023-0112](https://doi.org/10.1108/ijrdm-02-2023-0112).
- Zhou, G. and Liu, W. (2022), "Consumer choice in online vegetable distribution terminals: a Planned Behavior approach", *Journal of Retailing and Consumer Services*, Vol. 68, 103019, doi: [10.1016/j.jretconser.2022.103019](https://doi.org/10.1016/j.jretconser.2022.103019).

Table A1. Description of the case study areas

	Lützelburg	Müden
Number of inhabitants	1,730	2,420
Number of households	655	1,029
Municipality	Gablingen	Faßberg
Distance to the next large city	19 km to Augsburg	77 km to Hanover
Inhabitants per km ² (municipality)	178.4	61.5
Share of inhabitants 65 years and older (municipality)	21.0%	25.0%
Purchasing power per inhabitant	26,776 Euro	24,765 Euro
Distance to the next grocery store	3 km	4 km
Source(s): Compiled by the Authors with data from internet research (number of inhabitants, distance to large city and grocery store), www.inkar.de (population density, elderly population, purchasing power) and own data (number of households)		

Table A2. Method of calculation and descriptive statistics for the variables used for modelling, differentiated between the two cases Lützelburg and Müden

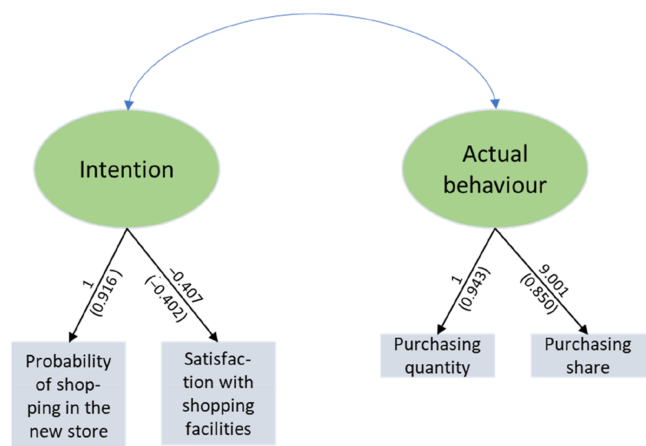
Variable	Calculation procedure	Case	Mean	Median	Standard deviation	Minimum	Maximum	Skewness	Kurtosis	N
Quality	importance of quality * probability of quality	Lützelburg	23.9	25	8.4	0	36	-0.436	-0.182	305
		Müden	23.5	25	8.2	0	36	-0.304	-0.334	432
Price level	importance of price level * probability of low prices	Lützelburg	9.6	8	7.6	0	36	1.353	2.251	304
		Müden	12.4	12	8.2	0	36	0.907	0.693	436
Products on sale	importance of products on sale * probability of products on sale	Lützelburg	10.3	9	8.7	0	36	1.154	1.244	308
		Müden	11.9	10	8.9	0	36	0.912	0.358	432
Service	importance of service * probability of good service	Lützelburg	23.6	25	9.4	0	36	-0.339	-0.746	302
		Müden	25.5	25	9.1	0	36	-0.648	-0.219	437
Meeting place	importance of meeting place * probability of meeting place	Lützelburg	9.0	6	10.0	0	36	1.310	0.981	304
		Müden	10.2	8	10.0	0	36	1.092	0.493	431
One-stop shopping	importance of one-stop shopping * probability of one-stop shopping	Lützelburg	13.5	12	10.7	0	36	0.614	-0.483	306
		Müden	15.7	15	11.2	0	36	0.359	-0.971	435
Trip chains	importance of trip chains * probability to combine paths	Lützelburg	6.7	3	9.4	0	36	1.670	2.106	307
		Müden	9.0	5	10.3	0	36	1.082	0.139	437
Proximity	importance of proximity * probability of proximity	Lützelburg	25.1	30	10.1	0	36	-0.812	-0.140	305
		Müden	27.2	30	9.6	0	36	-1.105	0.436	437
Assortment	importance of assortment * probability of assortment	Lützelburg	12.2	10	8.8	0	36	0.800	0.294	305
		Müden	13.4	12	9.3	0	36	0.807	0.087	436
Local products	importance of local products * probability of local products	Lützelburg	24.4	25	9.6	0	36	-0.515	-0.404	295
		Müden	22.1	24	10.0	0	36	-0.346	-0.615	430
Family	importance of family's expectations * probability of family's expectations	Lützelburg	9.1	4	10.7	0	36	1.085	0.156	311
		Müden	11.2	8	11.9	0	36	0.751	-0.681	439
Friends	importance of friends' expectations * probability of friends' expectations	Lützelburg	4.9	1	7.8	0	36	2.160	4.891	309
		Müden	7.4	3	9.5	0	36	1.402	1.320	436
Other locals	importance of other locals' expectations * probability of other locals' expectations	Lützelburg	4.6	0	7.5	0	36	2.125	4.720	310
		Müden	7.4	2	10.1	0	36	1.396	1.064	436
Car availability	importance of car availability * probability of car availability	Lützelburg	0.1	0	3.2	-6	6	-0.025	0.474	306
		Müden	0.9	0	2.9	-6	6	0.320	0.649	443
Health	importance of health * probability of health	Lützelburg	0.5	0	1.6	-6	6	1.675	6.091	307
		Müden	0.4	0	1.4	-6	6	1.665	8.201	439
Financial constraints	importance of financial constraints * probability of financial constraints	Lützelburg	-0.4	0	1.6	-6	6	-1.079	4.521	302
		Müden	-0.1	0	1.7	-6	6	-0.106	4.548	433

(continued)

Table A2. Continued

Variable	Calculation procedure	Case	Mean	Median	Standard deviation	Minimum	Maximum	Skewness	Kurtosis	N
Time sovereignty	importance of time sovereignty * probability of time sovereignty	Lützelburg	0.8	0	2.9	−6	6	0.182	0.609	301
		Müden	1.4	0	3.0	−6	6	0.168	−0.114	435
Shopping together	importance of shopping together * probability of shopping together	Lützelburg	0.2	0	1.1	−6	6	2.514	15.675	309
		Müden	0.3	0	1.2	−6	6	1.741	11.780	437
Probability of shopping in the new store	−	Lützelburg	3.2	3	1.7	0	6	−0.141	−0.758	310
		Müden	3.8	4	1.7	0	6	−0.413	−0.604	443
Satisfaction with shopping facilities	−	Lützelburg	4.0	4	1.5	0	6	−0.734	0.198	311
		Müden	3.6	4	1.6	0	6	−0.387	−0.449	442
Purchasing quantity	purchase in the neighbourhood store	Lützelburg	2.3	2	1.2	0	6	0.283	0.047	238
		Müden	3.2	3	1.4	0	6	−0.083	−0.760	367
Purchasing share	purchase in the neighbourhood store/(purchase in the neighbourhood store + supermarket + discounter + hypermarket + speciality stores + organic market or health food store + kiosk or gas station store + farmer's market, store or box + mobile retailer + e-commerce) *100	Lützelburg	17.2	15.4	12.8	0	100	2.294	10.311	195
		Müden	23.5	21.4	13.8	0	83.3	0.979	1.257	287

Source(s): Authors' own work



Note(s):
Standardised coefficients in parentheses
Equality constraints across groups for factor loadings, error variances, and factor variances
Model fit: convergence statistic < 1.002; posterior predictive $p = 0.49$
Source(s): Authors' own work

Figure A1. Results of the measurement model for intention and actual behaviour

Corresponding author
Patrick Küpper can be contacted at: patrick.kuepper@thuenen.de