

# The Effects of Perceived Fairness on Customer Responses to Retailer SST Push Policies

Allyn White<sup>a,\*</sup>, Michael Breazeale<sup>b</sup>, Joel E. Collier<sup>c</sup>

<sup>a</sup> School of Business, Eastern Kentucky University, Richmond, KY 40475, United States

<sup>b</sup> University of Nebraska at Omaha, NE, 68182, United States

<sup>c</sup> College of Business, Mississippi State University, MS, 39762, United States

## Abstract

Many retailers are implementing policies that encourage customer adoption of self-service technology (SST) offerings, such as self-checkout lanes, in order to enhance profitability. Instead of explicitly forcing customers to use SST, retailers create situations in which patrons are subtly pushed toward SST adoption. The authors examine the effects of fairness perceptions of these SST “push” policies on relationships between established antecedents of SST adoption and customer behavioral intentions toward the provider in a retail context. The results suggest fairness perceptions exert a significant influence on the relationships between these antecedents and customer patronage, future spending, and negative word of mouth intentions. Consistent findings across both users and nonusers of SST underscore the importance of fairness perceptions in the context of retailer SST push policies.

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## Introduction

*Fairness is not an attitude. It's a professional skill that must be developed and exercised.*

*Brit Hume*

Recently, a national grocery retailer announced the decision to remove self-service checkouts from its store layouts, asserting an attempt to enhance customers' experiences by providing more customer–employee interaction (Anand 2011). The concern with such a policy change would be that a significant number of customers have responded negatively to this form of self-service technology (SST). While existing research cites various customer and technology characteristics that hinder or prevent successful SST implementation (e.g., Dabholkar and Bagozzi 2002; Meuter et al. 2005; Parasuraman 2000), the possibility exists that customers may respond negatively to the policies enacting SST implementation, rather than the technology itself. Prior research suggests that customers rely heavily on

policy fairness perceptions in their evaluations of service experiences (Blodgett and Hill 1997; Schneider and Bowen 1999), a notion which forces academics and practitioners alike to focus on customer reactions to the retailer's approach toward encouraging SST adoption.

Procedural fairness perceptions, defined as the extent to which a retailer's policy is perceived as equitable, can affect customers' satisfaction with the provider, along with resulting behavioral intentions (Kukar-Kinney, Xia, and Monroe 2007; Maxham and Netemeyer 2003; Ringberg, Odekerken-Schröder, and Christensen 2007). Consequently, perceived fairness of policies, such as checkout and product return procedures, can largely determine the favorability of customer responses to retailers. In an effort to cut costs and enhance operational efficiency, many retailers implement policies that encourage customer adoption of self-service technology offerings, such as self-checkout lanes and bill-payment kiosks (e.g., Curran, Meuter, and Suprenant 2003; Verhoef et al. 2009). While few retailers explicitly force customers to adopt SST, a subtle “push” is applied to customers to use SST instead of a full-service option. This SST push can include the reduction of full-service options or even penalties for using full service. One of the most common examples of SST push is reducing the number of available full-service checkout lanes while increasing the number of available self-service

\* Corresponding author. Tel.: +1 859 684 7091; fax: +1 859 622 2359.

E-mail addresses: [allyn.white@eku.edu](mailto:allyn.white@eku.edu) (A. White), [mike@michael-breazeale.com](mailto:mike@michael-breazeale.com) (M. Breazeale), [jcollier@cobilan.msstate.edu](mailto:jcollier@cobilan.msstate.edu) (J.E. Collier).

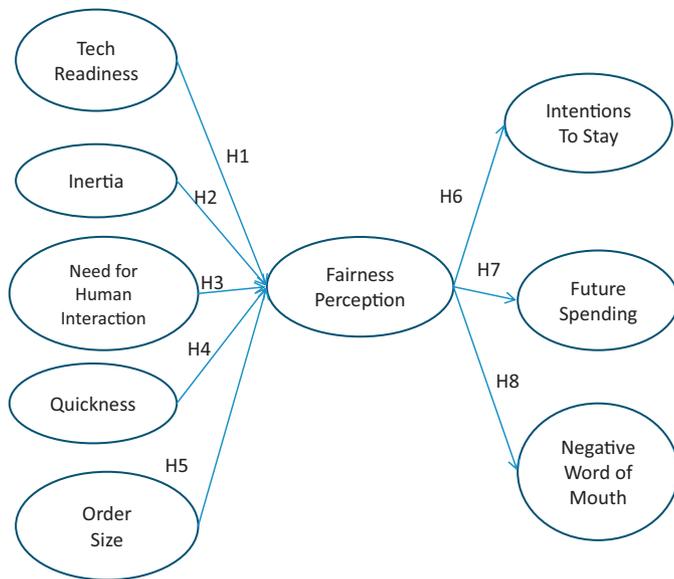


Fig. 1. Proposed model of customer fairness perceptions of the SST push policy.

checkout lanes, effectively coercing customers to utilize SST, lest they be penalized by waiting in longer full-service lines. For example, airlines now primarily employ SST flight check-in and limit the availability of full-service employees, while other providers (e.g., cellular phone companies) encourage use of in-store SST bill payment kiosks, both as preferable alternatives to full-service options.

While existing research is replete with studies on customers' overall attitudes toward SST, limited research addresses the related effects of SST push policies. The documented importance of customers' perceived fairness in evaluations of customer-provider interactions underscores the importance of exploring these effects in such settings. Drawing from fairness heuristic theory (Lind et al. 1993; Van den Bos et al. 1997a), the current study conceptualizes and tests a framework that examines the drivers of fairness perceptions of SST push policies, and the effects of perceived fairness on customer behavioral intentions (see Fig. 1). Dual studies of patrons of a national grocery store chain, including both users and nonusers of the retailer's self-service checkout scanning technology, are described in order to strengthen managerial understanding of how retailers' SST push policies can influence existing and potential customers. Results of both studies support the authors' expectations that perceived SST push policy fairness is largely driven by customer characteristics that have previously been associated with SST adoption. In addition, the findings suggest that fairness perceptions are an important factor in determining customers' behavioral intentions across users and nonusers.

### Theoretical background and hypotheses

#### *Fairness heuristic theory*

By nature, SST involves heightened customer effort as compared with full-service options. Consequently, customers must perceive the benefits of SST as outweighing the costs

of executing self-service options in order to choose it over full service. Fairness can be defined as a condition in which customers perceive the output they receive in a situation as equal to or exceeding the required inputs of the transaction (Adams 1965; Oliver and Swan 1989). In an SST push context, customers should form fairness judgments based upon their fairness impressions of the policy, as the procedure impacts their expectations about the required effort and benefits of being asked to use SST instead of full service. Fairness heuristic theory (Lind et al. 1993; Van den Bos et al. 1997a) proves useful in understanding the effects customer fairness perceptions have on their responses to the SST push policy. This theory posits that when faced with new or uncertain circumstances such as an SST push, customers rely on impressions of fairness when developing responses to such a policy. Importantly, existing research suggests that procedural information (e.g., policy content) is especially diagnostic with regard to fairness judgments (Haws and Bearden 2006; Huo et al. 1996). Social justice, social psychology, and marketing researchers have often replicated findings which indicate that perceived procedural fairness positively impacts how customers react to an outcome and to the provider of that outcome (Bettencourt, Brown, and Mackenzie 2005; Blodgett and Hill 1997; Maxham and Netemeyer 2002; Sparks and McColl-Kennedy 2001). The robustness of these findings has led researchers to conclude that the formation of overall fairness perceptions is even more strongly impacted by procedures than by outcomes (e.g., Kumar, Scheer, and Steenkamp 1995; Thibaut and Walker 1975; Van den Bos et al. 1997b; Xia, Kukar-Kinney, and Monroe 2010). Fairness heuristic theory suggests that, because procedural information is typically available prior to information about the outcome, fairness perceptions of the SST push policy impact customers' overall feelings toward a retailer (Kumar, Scheer, and Steenkamp 1995; Van den Bos et al. 1997b). In the context of SST push policies, customers who are unsure about the outcome of using SST might form opinions about the policy, as well as the retailer, based upon procedural fairness perceptions. Consequently, these opinions will inform their future actions.

### Conceptual development of the model

Customers' fairness impressions shape their attitudes toward future interactions with retailers (Bolton, Warlop, and Alba 2003). Additionally, procedural fairness judgments have been shown to impact customers' trust in exchange partners as well as their satisfaction with outcomes (Hui et al. 2004). When faced with a procedural change such as an SST push policy, customers might experience a degree of uncertainty regarding future transactions. Fairness heuristic theory would suggest that, in the face of this uncertainty, customers may resort to impressions of fairness as signals which inform their opinions of the technology and the retailer. If they deem the SST push policy to be fair, customers will most likely have a positive opinion of both the technology and the retailer.

The current research seeks to extend existing retailing literature by examining the antecedents and outcomes of perceived fairness in an SST push context. Existing services research

provides numerous individual and situational drivers of SST adoption (e.g., Meuter et al. 2005; Shih and Venkatesh 2004), but lacks an understanding of the effects of SST push policies on customer responses to the retailer. Results from the only uncovered study on this topic suggest that forced SST migration can elicit negative customer responses toward the provider (Reinders, Dabholkar, and Frambach 2008). The authors of that study did not, however, examine the effects of fairness perceptions on such responses. Thus, the unique contribution of this study is consideration of the potentially significant effects of perceived fairness on the relationships between established antecedents of SST adoption and customer responses to the retailer in the context of retailer SST push policies.

In line with prior research on SST adoption, individual and situational characteristics should influence customers' policy fairness perceptions. In an SST push context, five antecedents are considered particularly relevant to fairness perceptions. First, individual attributes such as level of technology readiness, need for human interaction, and inertia should be relevant in determining customer fairness perceptions, as these three variables have overwhelmingly been found to be the critical determinants of SST adoption in general (e.g., Colgate and Lang 2001; Dabholkar 1996; Parasuraman 2000). Equally important are situational factors, such as order size and perceived transaction quickness, as hypothesized drivers of customers' overall fairness perceptions. Both constructs relate to the efficiency of the transaction, and research has found that customers adopt SST when they feel that the time associated with the transaction is shortened (e.g., Anselmsson 2001; Weinberg 2000). In addition, the perceived costs of using SST may depend on the number of items that a customer must purchase because the process of checking out will inherently require more effort as the item number increases. In summary, each of these antecedents should serve as signals shaping customer fairness heuristics regarding the SST push policy, which will ultimately influence customer responses to the retailer, such as intentions to stay with the retailer, future spending, and negative word of mouth. The model in Fig. 1 presents the hypothesized drivers and consequences of customer fairness perceptions.

#### *Antecedents of fairness*

##### *Technology readiness*

Technology readiness refers to customers' "propensity to embrace and use new technologies for accomplishing goals in home life and at work" (Parasuraman 2000, p. 308). This construct is typically regarded as an indicator of a person's predisposition to use new technologies and has been studied in multiple contexts (e.g., Dabholkar and Bagozzi 2002; Meuter et al. 2005; Parasuraman 2000; Sethuraman and Parasuraman 2005; Shih and Venkatesh 2004). A large portion of this research has focused on the type of customer who will most readily adopt SST and has found support for the notion that customers' technology readiness positively impacts attitudes toward and intentions to use SST (Curran and Meuter 2005; Dabholkar and Bagozzi 2002; Meuter et al. 2005; Weijters et al. 2007). These findings suggest that customers who possess a high level of technology readiness

will be more likely to use the SST option and more likely to exhibit a positive attitude toward the retailer. The authors suggest that customers high in technology readiness will perceive the SST push policy more fairly than those individuals who are less confident in their ability to embrace SST. Therefore:

**H1.** The greater a customer's technology readiness, the more positive will be the perceptions of the fairness of an SST push policy.

##### *Inertia*

Inertia represents a customer's desire to preserve the cognitive and affective resources involved with performing an unfamiliar task (Bawa 1990). This notion implies that the customer repeats the same purchase behavior as a means of simplifying the decision-making process (Bawa 1990). Prior research has utilized this concept extensively as an antecedent of customer behaviors in a retail context (e.g., Colgate and Lang 2001; Yadav and Varadarajan 2005; Yanamandram and White 2006). For example, in terms of technology, inertia results in customers' returning to their bookmarked e-commerce sites out of habit rather than by conscious decision related to perceived benefits (Anderson and Srinivasan 2003). An extension of these findings suggests that customers faced with a technology-based option for self-checkout might also allow habit to guide their actions and consequently choose the full-service option with little if any attention paid to the merits of the less familiar method. If they feel pushed to employ SST, customers with a greater sense of inertia will be less likely to react positively to a change in their routine and will subsequently feel that they are being treated unfairly when forced to do so. Based on this:

**H2.** The greater a customer's inertia in a retail setting, the more negative will be the perceptions of the fairness of an SST push policy.

##### *Need for human interaction*

Many customers consider a degree of human contact to be an important component of a service encounter (Bateson 1985; Mathwick, Malhotra, and Rigdon 2002). Need for human interaction with a service employee is defined as the desire for human contact by the customer during a service experience (Dabholkar 1996). Customers with a high need for interaction typically avoid SST, while those with low need for interaction tend to seek out SST options (Dabholkar 1996; Forman and Sriram 1991; Prendergast and Marr 1994). Additionally, service research also suggests that constructs such as "avoiding personnel" (Meuter et al. 2000) and "need for independence" (Anselmsson 2001), positively influence customer SST adoption, underscoring further the importance of considering need for human interaction as an antecedent of customer fairness perceptions. The authors suggest that customers with a high need for human interaction will be more likely to perceive SST push policies as unfair. Therefore:

**H3.** The greater a customer's need for human interaction in a retail setting, the more negative will be the perceptions of the fairness of an SST push policy.

### Quickness

Quickness is defined in this study as the perceived time needed to successfully perform a self-service transaction. While SST usage has not been found to decrease actual time spent in the store (Weijters et al. 2007), the perception of a quicker transaction does impact the preference for self-service in general (Bateson 1985) and for self-scanning in particular (Anselmsson 2001). Customers' noted preference for quicker checkout (Dabholkar, Bobbitt, and Lee 2003; Weinberg 2000) suggests an established link between perceived quickness and perceptions of service quality and satisfaction (e.g., Davis and Heineke 1994; Taylor 1994). In the current context, customers may feel that the novelty of the SST would cause the other customers in line to proceed more slowly as they become acquainted with the process. On the other hand, customers may perceive the SST checkout as quicker than the full-service option. Consequently, customers who perceive the SST checkout method as faster than the traditional checkout method may be less inclined to perceive SST push policies as unfair. For that reason:

**H4.** The greater a customer's perception of SST quickness in a retail setting, the more positive will be the perceptions of the fairness of an SST push policy.

### Order size

Order size is often considered to be the actual dollar amount spent by the customer and is positively related to customer satisfaction (Anderson and Srinivasan 2003) and loyalty (Day 1969; Kuehn 1962). For the purposes of this manuscript, however, the construct relates to the number of items the customer intends to purchase. Defining order size in terms of item quantity provides a better operationalization of the construct in the current context, particularly because the effort required to repeatedly perform the checkout process for a larger number of items will likely influence a customer's attitude toward using SST. The authors suggest that those customers who have more items to purchase will be more inclined to utilize the full-service option as an effort reduction technique, and that smaller order sizes may be related to a more efficient SST transaction in the mind of the customer (Weijters et al. 2007). Therefore:

**H5.** The larger a customer's order size, the more negative will be the perceptions of the fairness of an SST push policy.

### Outcomes of fairness

Previous research has included a myriad of possible behavioral outcomes based on customers' attitudes toward specific retailers. For the purposes of the current study, three outcomes provide the most relevant implications for retailers. First, intentions to stay with the retailer reflect the customer's overall satisfaction with the retailer. Second, future spending intentions is included to indicate whether the customer's fairness perceptions will impact the actual spending habits of that customer. Third, intentions to disseminate negative word of mouth serves as a gauge of the intensity of the customer's feelings regarding the fairness of the SST push and reflects how likely he or she will tell others about perceptions of unfairness. Taken together,

these dependent variables should provide a broad reflection of customer responses to SST push policies.

### Intentions to stay

Intentions to stay with a provider is an outcome highly impacted by customer dissatisfaction with that provider (Bansal, Taylor, and St. James 2005; Keaveney 1995). An abundance of research has examined the antecedents of customers' intentions to switch from or stay with a service provider (e.g., Capraro, Broniarczyk, and Srivastava 2003; McColl-Kennedy et al. 2009; Patterson and Smith 2003). In particular, results from existing research suggest a direct link between perceived unfairness and intentions to switch or stay in a retail setting (Blodgett and Hill 1997; Schneider and Bowen 1999). Therefore:

**H6.** The greater a customer's perceptions of fairness of an SST push policy, the greater will be the intentions to stay with the provider.

### Future spending intentions

The authors include future spending intentions to distinguish between those customers who will continue to shop with the retailer with no change in spending intensity and those who will remain patrons but reduce expenditures based upon perceptions of unfairness. The latter group, though unhappy, may continue shopping with the retailer for reasons such as convenience or even inertia (Bansal, Taylor, and St. James 2005; Jones, Mothersbaugh, and Beatty 2002; Zauberan 2003). Reduced future spending intentions provide evidence that customers intend to modify their behavior on some level, providing implications for retailers (Teng 2009). Thus, the following hypothesis suggests:

**H7.** The greater a customer's perceptions of fairness of an SST push policy, the greater will be the future spending intentions.

### Negative word of mouth

Negative word of mouth (NWOM) is defined as interpersonal communication concerning an organization and/or its products or services that denigrates the object of the communication (Richins 1983; Schoefer and Diamantopoulos 2008). Existing research often cites NWOM as a behavioral response to dissatisfactory service or service recovery attempts (Anderson 1998; Blodgett, Granbois, and Walters 1993; Ward and Ostrom 2006). Of particular relevance to the current study, prior research suggests that customer fairness perceptions are key drivers of this behavior (Blodgett and Hill 1997; Sparks and McColl-Kennedy 2001). Disseminating NWOM provides a behavioral coping function for customers who perceive a situation as unfair, allowing them to vent discontent and possibly gain sympathy from others (Zeelenberg and Pieters 2004). Therefore:

**H8.** The greater a customer's perceptions of fairness of an SST push policy, the lower the intentions to disseminate negative word of mouth.

## Method

The authors tested the conceptual model using a scenario-based questionnaire to collect the data. Previous retailing and self-service research has successfully used scenario-based studies to evaluate a variety of topics (e.g., Dabholkar and Bagozzi 2002; Grewal, Roggeveen, and Tsiros 2008; Mittal, Huppertz, and Khare 2008). Along with the scenario, a total of 25 items were included to measure all constructs of interest. The scale items were adapted from existing research with the wording of each item slightly changed to reflect the SST context of this study. Four additional questions were included in order to (1) ensure respondents were actually customers of the service provider; (2) determine whether they had ever used the SST; and capture (3) gender and (4) age.

Respondents from the southeastern region of the United States were solicited for survey participation by trained student recruiters. For Study 1, recruiters sought patrons of a national grocery store who were current users of the store's self-service checkout machines. In Study 2, recruiters sought patrons of the same grocery store who had not used the self-scanning stations in the past. Due to the length of the survey and customers' preference for a quick self-service transaction, recruiting customers within the store was not permissible. Based on existing contact information, study participants were recruited after their shopping trip by recruiters who either personally approached potential respondents or contacted them via telephone or Internet to request their participation. Respondents for both studies were given the choice to take the survey online or via a hard-copy. The survey asked respondents to read a scenario, which was amended slightly between users and nonusers, describing a potential change in the number of checkout channels from full service to self service. The scenario detailed that on the customer's next visit to the retailer the number of full-service checkout options had been reduced by one-third and the number of self-service checkout channels had more than doubled. Respondents were then asked to answer survey questions based on their reactions and attitudes toward the policy. See Appendix A for the scenario.

Each recruiter received training on enlisting and screening potential subjects, as well as an extensive discussion on the importance of developing an authentic sample. As is the case with previous research utilizing this method, steps were taken to encourage authentic responses (see Gremler and Gwinner 2008, p. 311). With Study 1, trained recruiters approached users, defined as customers who had used the store's self-scanning station in the past. Before distributing the final survey, a pretest was administered to 209 current users of the store's self-scanning checkout to assess the validity and reliability of the scales. An exploratory factor analysis was initially conducted, and results suggest that each item loaded on its respective construct. At the conclusion of the pretest, the composite reliability coefficient for each construct measure was calculated. All scales exhibited an acceptable level of reliability ( $\alpha \geq .70$ , Nunnally and Bernstein 1994). Based on the results of the pretest, the scale items for need for human interaction were slightly altered for clarification with regards to the specific SST utilized in the study. As for

the rest of the survey, all other items were exactly the same as the pretest.

A total of 560 users of the national grocery store's self-service checkout were recruited for the first study.<sup>1</sup> Due to incomplete information or failure to complete the survey, 53 surveys were dropped from the study leaving 507 usable responses (424 online and 83 paper). From the final sample, fifty-three percent were female, and the average age of respondents was 34. Because two survey formats were available to respondents, the authors conducted a *t*-test to determine whether responses significantly differed based on the survey delivery method. The results found no significant differences in any of the constructs between survey formats.

To assess the unidimensionality, convergent validity, and discriminant validity of the latent constructs, a confirmatory factor analysis was performed using AMOS 17. The results of the analysis suggest an acceptable fit of the model to the data ( $\chi^2 = 563.25$ ,  $df = 280$ ,  $NFI = .96$ ,  $IFI = .98$ ,  $TLI = .97$ ,  $CFI = .98$ ,  $RMSEA = .04$ ). For a complete list of results from the CFA along with composite reliabilities for each construct see Table 1. Since the data was collected at a single point in time rather than longitudinally, common method bias was assessed to determine its influence. The authors followed Podsakoff et al.'s (2003) recommendation for addressing common method bias by including a single unmeasured latent method factor specified as having a relationship with every scale item to account for any systematic bias that could occur with the predictors and outcome variables measured at the same time. The authors performed a CFA with and without the common method factor to determine if a significant difference was present. The results of the analysis found no significant difference ( $\chi^2/df = 1.50/1 df$ ) providing evidence that common method bias is not a substantial concern. The authors further assessed the validity of the scales by examining the average variance extracted for each construct along with shared variance between constructs (Fornell and Larcker 1981). The average variance extracted for each construct was above .50 (see Table 2) and no shared variance between constructs exceeded the average variance extracted per construct.

After analyzing the measurement model, the structural model displayed in Fig. 1 was tested in AMOS 17 to examine the path estimates between constructs based on the sample covariance matrix. Previous SST research has found that demographic variables such as age and gender can influence key outcomes of a self-service experience (Meuter et al. 2003), thus, age and gender were included as control variables to account for potential

<sup>1</sup> The authors would like to thank a reviewer for pointing out a potential bias in the scenario for users. Subsequently, the authors decided to perform a second round of data collection for the users with a revised scenario. The second round of responses was compared to the initial round and found that the significance of relationships remained unchanged. The second round of data collection is presented in the paper to account for the most accurate results. Since a second data collection took place with the users, the authors also collected a small sample ( $n = 45$ ) of nonusers to assure that history effects were not present. Using a bootstrapping technique with replacement, the authors used 1000 samples of the second data collection and compared this to the original data collection for nonusers. The significance of the relationships did not change across the samples, thus the authors used the original nonuser sample.

Table 1  
Confirmatory factor and reliability analysis.

Self-service items	Study 1 Users Standardized ( <i>t</i> -values) Factor loadings	Study 2 Nonusers Standardized ( <i>t</i> -values) Factor loadings
Technology readiness	( $\rho = .92$ )	( $\rho = .93$ )
-If I wanted to, I believe I have the ability to complete a transaction using a self-service checkout method.	.87 (**)	.93 (**)
-I am confident I could use the self-service checkout method at [Retailer].	.90 (28.15)	.95 (31.50)
-I believe I have the skills needed to complete a transaction using a self-service checkout method.	.89 (27.88)	.84 (23.26)
Inertia	( $\rho = .93$ )	( $\rho = .91$ )
-Changing checkout methods would be a bother.	.94 (**)	.89 (**)
-For me, it would be inconvenient to switch checkout methods.	.92 (31.13)	.87 (21.10)
-It's just not worth the hassle for me to switch checkout methods.	.87 (27.85)	.91 (22.96)
Need for human interaction	( $\rho = .92$ )	( $\rho = .90$ )
-I would prefer to talk with an employee than to use a machine.	.85 (26.92)	.83 (19.99)
-If I had a choice between using a machine or a store employee to check out my groceries, I would choose the employee.	.89 (32.75)	.86 (20.50)
-My grocery shopping experience would not be as enjoyable if I had to use a machine to check out my groceries instead of letting an employee perform the checkout.	.80 (23.24)	.80 (16.50)
-I would prefer to interact with an employee than a self-service checkout machine when checking out my groceries.	.92 (**)	.85 (**)
Quickness	( $\rho = .96$ )	( $\rho = .97$ )
Because of the changed checkout options, the speed of my checkout would now be:		
-Slow–fast	.96 (**)	.96 (**)
-Not speedy–speedy	.96 (41.35)	.97 (34.01)
-Not quick–quick	.93 (36.64)	.96 (33.16)
Fairness of the policy	( $\rho = .93$ )	( $\rho = .94$ )
I believe that [Retailer]'s policy of reducing the number of full-service checkout lanes and increasing the number of self-service checkout lanes would be:		
-Unfair–fair	.88 (**)	.92 (**)
-Unacceptable–acceptable	.94 (27.75)	.94 (26.15)
-Unreasonable–reasonable	.92 (26.72)	.91 (24.46)
Order size	( $\rho = .91$ )	( $\rho = .86$ )
-If I had a large order of items, I would avoid using a self-service checkout machine.	.90 (**)	.78 (**)
-With a large order, I would rather let an employee check out my groceries than use a self-service machine.	.94 (23.91)	.96 (12.77)
Future spending	( $\rho = .96$ )	( $\rho = .97$ )
Based on the new checkout policy at [Retailer], I believe that my future spending would be:		
-Decreased–increased	.95 (**)	.96 (**)
-Much less–much more	.93 (35.22)	.97 (39.09)
-Lower–higher	.97 (40.47)	.97 (38.90)
Intentions to stay with provider	( $\rho = .96$ )	( $\rho = .94$ )
Based on the new checkout policy at [Retailer], how likely would you be to continue shopping at [Retailer]?		
-Never–definitely	.94 (**)	.92 (**)
-Probably not–probably	.95 (34.83)	.93 (24.72)
-Not likely–very likely	.97 (37.29)	.94 (25.39)
Negative word of mouth	( $\rho = .91$ )	( $\rho = .93$ )
-Based on the new checkout policy at [Retailer], I would likely say negative things about [Retailer].	.90 (**)	.91 (**)
-Based on the new checkout policy at [Retailer], I would not recommend [Retailer] to my friends and relatives.	.85 (20.99)	.89 (20.47)
-Based on the new checkout policy at [Retailer], I would advise my friends and relatives against shopping at [Retailer].	.92 (30.20)	.95 (24.92)

Model fit statistics:

Study 1 Users –  $\chi^2 = 563.25$ ,  $df = 280$   $p < .001$ ; NFI = .96, IFI = .98, TLI = .97, CFI = .98, RMSEA = .04.

Study 2 Nonusers –  $\chi^2 = 632.42$ ,  $df = 280$   $p < .001$ ; NFI = .94, IFI = .96, TLI = .95, CFI = .96, RMSEA = .06.

Note: \*\* denotes a constrained relationship to 1.00 in order for identification;  $\rho$ : composite reliability.

Table 2  
Means, standard deviations and correlations of constructs.

	Study 1		Study 2		Intercorrelation of constructs								
	Mean (S.D.)	AVE	Mean (S.D.)	AVE	1	2	3	4	5	6	7	8	9
	1. Tech ready	6.61 (.81)	.83	6.21 (1.33)	.82	(1)	-.15	-.31	.01	.29	.29	.14	.22
2. Need for human interaction	4.12 (1.75)	.75	4.82 (1.68)	.70	-.23	(1)	.72	.47	-.47	-.50	-.41	-.42	.48
3. Inertia	3.19 (1.76)	.83	4.01 (1.89)	.80	-.32	.68	(1)	.44	-.51	-.56	-.44	-.44	.57
4. Order size	5.68 (1.67)	.85	5.83 (1.54)	.76	-.03	.54	.43	(1)	-.34	-.38	-.32	-.20	.21
5. Quickness	4.52 (1.60)	.90	4.18 (1.67)	.93	.23	-.57	-.49	-.40	(1)	.56	.51	.48	-.39
6. Fairness of policy	4.69 (1.56)	.84	4.29 (1.69)	.85	.28	-.58	-.53	-.37	.59	(1)	.63	.59	-.47
7. Future spending	3.81 (1.13)	.91	3.60 (1.30)	.94	.23	-.47	-.44	-.31	.48	.55	(1)	.62	-.34
8. Intentions to stay with provider	5.27 (1.47)	.91	4.63 (1.64)	.87	.22	-.47	-.43	-.31	.47	.56	.55	(1)	-.50
9. Negative word of mouth	2.49 (1.52)	.79	2.95 (1.67)	.84	-.23	.49	.45	.33	-.49	-.55	-.45	-.50	(1)

Note: Correlations below the diagonal are Study 1. Correlations above the diagonal are Study 2. S.D.: standard deviation; AVE: average variance extracted.

differences between types of customers. The results of the analysis found that the model fit the data relatively well ( $\chi^2 = 56.16$ ,  $df = 14$ ,  $p < 001$ , NFI = .97, IFI = .97, CFI = .97, RMSEA = .07). After establishing the model fit, the relationships between constructs were analyzed. Table 2 displays the scale means, standard deviations, average variance extracted, and intercorrelations between constructs. Table 3 presents the standardized path estimates and *t*-values for each of the hypothesized model relationships along with the control variables.

In order to generalize the findings, the authors replicated Study 1 with nonusers of the self-service technology from the same national grocery provider. Nonusers are defined as customers who are aware of self-service options, but at the time of the study had not used the SST. Because nonusers have no prior experience using the SST in question, their responses should not be biased by positive or negative experiences in the past. Additionally, SST nonusers may exhibit important differences from users and be more inclined to perceive the substitution of SST checkouts for full-service checkouts as a penalty, thus making fairness perceptions even more of a concern for practitioners.

Study 2 utilized identical respondent solicitation and data collection and analysis techniques to those used in Study 1. A total of 395 nonusers completed a survey, but due to incomplete responses only 331 (251 online and 80 paper) were usable for Study 2. The sample demographics were very similar to Study 1 with 52 percent being female. The average respondent age was 32. As in Study 1, the authors performed a *t*-test to determine if survey format influenced respondents and found no significant difference between online and paper format for any construct. Additionally, age and gender were included as control variables to account for customer differences.

Consistent with Study 1, all measurement items for the nonuser sample were analyzed. A confirmatory factor analysis was run in AMOS 17 along with composite reliabilities for each construct. Like Study 1, the overall fit statistics indicate the measurement model exhibited a good fit to the data, and all construct reliabilities were well above recommended guidelines (see Table 1). Similar to the analysis of Study 1, a common method bias test was conducted, and the results found a nonsignificant difference between the original CFA and one that included a latent common method factor. Hence, it appears that the use of a common method has little influence on the results. The authors also assessed the convergent and discriminant validity of the scales and found them to be acceptable. See Table 2 for means, standard deviations, average variance extracted and correlations for Study 2. Next, the path estimates for the nonuser sample were tested using the covariance matrix in AMOS 17. The results support the model's acceptable fit to the data ( $\chi^2 = 62.01$ ,  $df = 14$ ,  $p < .001$ , NFI = .95, IFI = .96, CFI = .96, RMSEA = .10). For a complete list of standardized path estimates and *t*-values for each relationship, see Table 4.

The results for both studies suggest that users' and nonusers' technological readiness with SST does influence fairness perceptions, supporting Hypothesis 1. Surprisingly, this relationship was relatively weak for both samples. This finding suggests that, among current SST users, a heightened level of readiness may

Table 3  
Structural model test results for users of SST.

Hypothesized relationship	Standardized estimate	t-values	Supported
H <sub>1</sub> Tech readiness → fairness of policy	.09	3.27**	Yes
H <sub>2</sub> Inertia → fairness of policy	-.15	-4.09*	Yes
H <sub>3</sub> Need for interaction → fairness of policy	-.22	-5.21*	Yes
H <sub>4</sub> Quickness → fairness of policy	.33	9.38*	Yes
H <sub>5</sub> Order size → fairness of policy	-.05	-1.54 n.s.	No
H <sub>6</sub> Fairness of policy → intentions to stay	.83	14.09*	Yes
H <sub>7</sub> Fairness of policy → future spending	.83	13.93*	Yes
H <sub>8</sub> Fairness of policy → negative WOM	-.88	-14.52*	Yes
Control variables			
Age → fairness	-.04	-1.15 n.s.	
Age → intentions to stay	.06	1.48 n.s.	
Age → future spending	.04	1.01 n.s.	
Age → negative WOM	-.07	-1.84 n.s.	
Gender → fairness	-.06	-2.01***	
Gender → intentions to stay	.08	2.03***	
Gender → future spending	.03	.80 n.s.	
Gender → negative WOM	-.09	-2.26***	

Model fit statistics:

$\chi^2 = 56.16, df = 14, p < .001.$

NFI = .97, IFI = .97, CFI = .97, RMSEA = .07.

\*  $p < .001.$

\*\*  $p < .01.$

\*\*\*  $p < .05.$

n.s.: not significant.

render other criteria more salient with regard to determining the fairness of the SST push policy. For nonusers, being technically ready may be important, but other constructs such as inertia, need for human interaction, and quickness may have a greater influence on fairness perceptions.

For users and nonusers of the SST, inertia (H2) and need for human interaction (H3) exhibited the hypothesized negative relationships with fairness of the push policy. In the nonuser study, inertia had a strong relative influence on fairness perceptions ( $\gamma_{12} = -.28, t = 5.58, p < .001$ ). As for the user group,

Table 4  
Structural model test results for non-users of SST.

Hypothesized relationship	Standardized	t-values supported	Estimate
H <sub>1</sub> Tech readiness → fairness of policy	.14	4.13*	Yes
H <sub>2</sub> Inertia → fairness of policy	-.28	-5.58*	Yes
H <sub>3</sub> Need for interaction → fairness of policy	-.15	-3.25**	Yes
H <sub>4</sub> Quickness → fairness of policy	.24	6.00*	Yes
H <sub>5</sub> Order size → fairness of policy	-.02	-.80 n.s.	No
H <sub>6</sub> Fairness of policy → intentions to stay	.83	11.03*	Yes
H <sub>7</sub> Fairness of policy → future spending	.76	10.77*	Yes
H <sub>8</sub> Fairness of policy → negative WOM	-.96	-10.59*	Yes
Control variables			
Age → fairness	-.008	-0.18 n.s.	
Age → intentions to stay	.03	0.66 n.s.	
Age → future spending	-.07	-1.55 n.s.	
Age → negative WOM	-.06	-1.16 n.s.	
Gender → fairness	-.11	-2.81**	
Gender → intentions to stay	.10	2.30***	
Gender → future spending	.02	0.62 n.s.	
Gender → negative WOM	-.08	-1.56 n.s.	

Model fit statistics:

$\chi^2 = 62.015, df = 14, p < .001.$

NFI = .95, IFI = .96, CFI = .96, RMSEA = .10.

\*  $p < .001.$

\*\*  $p < .01.$

\*\*\*  $p < .05.$

n.s.: not significant.

need for human interaction had a stronger influence than inertia on fairness perceptions (chi square difference test  $\chi^2 = 54.00/1 df$ ). These results further emphasize that customers' unwillingness to change their current patterns of behavior, along with a diminished employee presence, can heavily impact customers' fairness perceptions of the SST push policy.

One of the most robust predictors of fairness perceptions was the quickness of the transaction (H4). Based on the standardized estimates between paths and a chi square difference test, quickness had the strongest relative influence on fairness perceptions for users of the SST ( $\gamma_{14} = .33, t = 9.38, p < .001$ ; chi square difference  $\chi^2/df = 111.30/1 df$ ). In addition, even for the nonusers, the perceived quickness of the transaction positively influenced the perceived fairness of the SST push policy.

The one predictor not found to significantly influence fairness perceptions was customer order size (H5). With customers having to exert more mental, and sometimes physical, effort with larger orders, the authors believed order size would impact their fairness perceptions. Contrary to expectations, order size was not significantly related to perceived fairness in either group. In other words, the number of items to be scanned had little impact on customers' fairness perceptions.

As for the dependent variables, fairness of the SST push policy significantly influenced both users' and nonusers' intentions to stay with the retailer, future spending, and propensity to spread NWOM, supporting Hypotheses 6–8, respectively. Interestingly, the strongest impact of fairness perceptions with both groups was on intentions to spread NWOM. Overall, the results suggest that regardless of whether a patron has previously used the SST, the push to another checkout option must be associated with a fair or equitable outcome to the customer. Accordingly, an SST push policy perceived as unfair could not only directly impact an existing customer base but could also influence potential customers via negative word of mouth.

### Discussion and managerial implications

Even as some retailers are abandoning the practice, many others are implementing policies that encourage customers to adopt SST offerings with the ultimate objective of enhancing profitability. This research represents an initial attempt to examine the extent to which customer fairness perceptions influence the relationships between antecedents of SST adoption and related customer outcomes. The results suggest that fairness perceptions do significantly influence these relationships, and the findings have important implications for retail strategy.

First, with respect to the outcome variables, customers who perceive the SST push policy as fair are more likely to stay and maintain, if not increase, their future spending with the retailer. In contrast, individuals viewing the policy as unfair are less likely to express intentions to stay or increase future spending. Fairness perceptions are also inversely related to negative word of mouth intentions, suggesting that those customers who perceive SST push policies as unfair will likely share their opinions with others. Consequently, retailers must consider the potentially far reaching effects of SST push policies. Indeed, the observed importance of policy fairness suggests that retailers

must effectively communicate to customers the ways in which their experience is enhanced through adoption of SST.

Second, significant findings across both SST users and nonusers underscore the critical role that fairness perceptions serve in influencing customer behaviors. The results suggest that customers may respond unfavorably to SST push policies if they perceive the policy as unfair, regardless of their previous experience with SST. Moreover, retail managers should manage nonuser perceptions, as the relationship between fairness perceptions and propensity for negative word of mouth for this sample was the strongest of the three hypothesized associations. One strategy might entail communicating to fervent nonusers that their experience may be indirectly enhanced by the policy. Specifically, other nonusers' amenable transition to SST would reduce the number of customers waiting to use full-service checkout. Such an approach should foster comfort among nonusers by providing evidence of the retailer's consideration of these customers' satisfaction.

Third, regarding the antecedents, all but one variable—order size—are significant drivers of customer fairness perceptions. Customers' technological readiness and quickness expectations are positively related to fairness perceptions across both users and nonusers. These results suggest that the more uncomfortable customers feel about using SST and the longer the perceived length of the time needed to complete the transaction, the more likely they will view the SST push policy as unfair. Quickness is the strongest predictor of fairness perceptions for the users, suggesting that these individuals particularly value the utilitarian benefits of using SST. Therefore, retailers should strive to ensure operational efficiency of SST transactions by maintaining adequate staffing during the initial phase of SST push policy implementation. While this suggestion may seem counterintuitive to the expected push policy benefit of reduced staffing needs, a quick transaction for each customer demands that all customers develop at least minimal proficiency at the SST process. Similarly, available "training" personnel can guide customers who are uncertain of their ability to complete transactions on their own, thus mitigating the negative responses of technology-hesitant customers.

Additionally, need for human interaction and inertia negatively impact customer fairness perceptions. Customers who value the social aspect of shopping, along with those individuals who consider learning to use the SST a nuisance, are more likely to view the retailer SST push policy as unfair. This relationship is especially pronounced for nonusers, suggesting that retailers must communicate to customers the ease of using SST, as well as take measures to train them to use this option. Also, managers might emphasize the hedonic value of the overall shopping experience by encouraging more face-to-face interaction between customers and employees on the retail floor. Finally, the nonsignificant relationship between order size and fairness perceptions has implications for managers, as the number of items to be checked out does not appear to influence customers' fairness perceptions of the SST push policy. This finding, while seemingly counterintuitive, suggests that both users and nonusers rely more heavily on the abstract variables—tech readiness, need for human interaction,

inertia, and quickness—as heuristics in developing fairness perceptions.

This study extends existing literature in a number of ways. Most importantly, fairness perceptions are a critical determinant of customers' behavioral intentions. Previous research supports this notion, but has neglected to consider perceived fairness as a significant construct in terms of SST push policies. The current findings suggest that customers' overall fairness heuristics with regard to SST pushes can heavily influence their attitudes not only toward the policy, but toward the provider as well. Additionally, the findings of customers' heavier reliance upon latent fairness signals over a more objective variable such as order size has implications for research in this area. One explanation for this finding would be that the perceived psychological costs associated with SST push policies are sufficient to develop customer fairness perceptions. Furthermore, the fact that the model fit is acceptable across two significantly different samples, users and nonusers, provides substantial support for the proposed framework.

### Limitations and future research

Limitations within the current research exist that need to be addressed. First, the study context was limited to one area that does not necessarily capture the nature of SST implementation across other retail settings. Future research should seek to replicate the current findings among other types of retailers and service providers, such as fast food restaurants and airports. Indeed, employing the use of settings such as airports, where customers are becoming increasingly forced to utilize SST, may provide additional insight toward understanding customer responses to SST push policies. Moreover, retailers may station employees in SST areas as a form of “human backup” to help customers transition more easily to SST use. A fruitful avenue for research could address customer perceptions of available employee assistance and the extent to which human backup enhances customer fairness evaluations of SST push policies. Furthermore, as retailers often implement SST in multiple locations of a store, a complementary study addressing other types of SST (e.g., bill payment kiosks) would provide additional value to SST migration research.

Regarding SST, several other potential areas for research exist. Fairness perceptions related to SST push policies may influence other dependent constructs, such as customer trust in the retailer and patronage frequency intentions. In addition, customers' fairness perceptions regarding these policies may change depending upon the primary consumption motivation. For example, customers engaging in hedonic consumption experiences (e.g., movies, amusement parks) may respond differently to SST push policies than customers with more utilitarian goals. Additionally, other characteristics of the checkout situation, such as the presence of other people with the shopper (e.g., children) or the type of product to be scanned (e.g., produce), may influence attitudes toward SST pushes from the retailer. Future research should seek to identify other currently uncovered drivers of customer fairness perceptions. In summary, the results of the current study and the importance of understanding

SST push policies for both researchers and retailers merit future research in this area.

## Appendix A. Scenario

### Grocery store shopping experience

The purpose of this study is to better understand consumers' grocery shopping experiences. Please read the following scenario and answer the questions in the attached survey. Thank you for your participation.

### Scenario

You have been a regular customer of Kroger for the last couple of years and have enjoyed your shopping experience with this store. In the past, Kroger has offered 9 full-service checkout lanes, and 2 self-service checkout lanes. Both the self-service and full-service lanes will allow you to pay for your groceries with cash or credit card. You have used both the full service and the self-service checkouts before (nonuser: You have regularly used the full-service checkout, and have not tried the self-service checkout). On your next visit, you notice that the number of full-service checkout lanes has been reduced to 6, and the number of self-service checkout lanes has been increased to 5. You ask a Kroger employee about this, and she tells you that Kroger has changed the number of checkout options as a way to give customers more flexibility in their shopping experience.

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