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Assessing the Influence of Economic and Customer Experience Factors on Service Purchase Behaviors

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Past studies have overlooked the joint effects of economic and customer experience factors on service purchase behaviors. Furthermore, service firms tend to make substantial investments in enhancing customer experience, mitigating the negative effects of service failures through recovery efforts and increasing overall customer satisfaction. Yet, largely due to a paucity of data, we know little about how the state of the economy influences the way in which customers use past service experiences to make future purchase decisions. We hypothesize that the state of the economy moderates the effects of customer experience factors on customers' service purchase behaviors. In addition, we examine how personal income influences the degree to which the aggregate economy influences service purchase decisions. We test the proposed model using panel survey and transaction data from an international airline carrier. Our findings demonstrate that, contrary to wisdom in the popular press, customer experience matters more when the economy is doing better, not worse. Furthermore, lower income consumers are more sensitive to changes in the economy than higher income consumers. We validate the hypothesized model using a controlled experiment and establish that aggregate measures of the economy can be used to predict individual perceptions and purchase intentions.

Keywords: the economy; customer satisfaction; service failure; service recovery; personal income; customer experience; service purchase behavior
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1. Introduction

The importance of the service sector is undeniable. In fact, services now contribute close to 75% of the GDP in the United States (Bartash 2012). Services have become increasingly important to economic development globally (Dotzel et al. 2013) as they account for 70% of employment in the Organization for Economic Cooperation and Development (OECD) nations (OECD Council 2005). This shift over the past few decades is exemplified by many leading firms adding services to their existing product offerings and investing in service innovations to provide total customer solutions, which in turn, increase competitiveness and profitability (Dotzel et al. 2013, Sawhney et al. 2006).

However, there is growing evidence that service industries are especially vulnerable to the state of the macroeconomic environment. Relative to other sectors, the service sector has suffered gravely in the recent global recession (De Nardi et al. 2012) with a sizable portion of the decline in total GDP stemming from service industries (Bergen 2012). For example, due to harsh economic conditions in 2009, the hotel industry suffered an 8% drop in occupancy rates and an alarming 22% drop in per room revenue (Hudson 2009). This provides powerful evidence that (poor) economic conditions strongly influence consumer demand for services.

Thus, the very same industry that is increasingly crucial to the global economy is also highly vulnerable to economic conditions. The immediate need, therefore, is to better understand the impact of the macroeconomic environment on individual demand for services. Indeed, service firms have begun to understand the importance of focusing on customer experience during changes in economic conditions (Allen 2011, McGregor et al. 2009). Yet, in spite of investing in service quality improvements, service firms are increasingly confronted with service failures, customer complaints, and dissatisfaction. For instance, despite a reduction in the number of flight delays, customer complaints have risen by 17% for airline firms (Martin 2012). Similarly, 27% of hotel customers experienced at least one service failure during their stay (Consumer Reports 2012) and 68% of customers who defected never returned due to ineffective recovery efforts (CustomerGauge 2008). In total, service failures and poor recovery efforts remain a concern for service firms.

A particularly intriguing problem facing service firms is how to alter investments in customer experience initiatives with respect to changing economic conditions. The popular press often supports the idea that

when economic conditions are poor and firms are struggling, the consequences of poor service quality are potentially disastrous. In fact, experts advocate the extreme importance of service firms such as airline carriers showing greater empathy to its customers in the face of economic downturns to prevent the loss of its most valued fliers (Allen 2011). In other words, experts have suggested that when economic times are poor, firms should make customer retention a priority by pleasing their existing customers with superior service. Conversely, when economic times are better, firms should focus on customer acquisition (McGregor et al. 2009). However, to our knowledge, such advice has not been empirically verified. Thus, while firms should always aim to provide good service quality, we question the validity of the claim that customer experience matters more when the economy is weak (versus strong).

More recently, researchers in marketing have begun to examine the effects of changes in the economic climate on individual outcomes such as price elasticity (e.g., Gordon et al. 2013), demand for essential versus nonessential products (e.g., Kamakura and Du 2012), and household shopping behavior for consumer packaged goods (Ma et al. 2011). Still, we know little about how the state of the economy influences the way in which customers use past service experiences, including their satisfaction and the way they reacted to unrecovered and recovered service failures to make future purchase decisions. Note that the degree to which the economy at the aggregate level influences individual purchases is likely contingent on a customer's personal income (Ma et al. 2011). Accordingly, we address the following research questions:

1. Does the state of the economy influence how often a customer purchases a service and how much they spend?

2. Does the state of the economy moderate the influence of customer experience factors on customers' service purchase behaviors over and above the effects of demographic and behavioral factors?

3. Does personal income impact the role that the state of the economy plays in determining an individual's service purchase behaviors?

4. Does satisfying customers and creating positive service experiences matter more when economic times are better or worse?

We answer these questions by proposing and testing a conceptual model that examines the direct effect of the state of the economy and its interactions with customer experience factors (e.g., customer satisfaction, unrecovered service failure, recovered service failure) and the individual economic factor of personal income on service purchase frequency and revenue. We rely on past theoretical insights on price sensitivity and relative attribute importance to propose these relationships. We test our model using panel transaction and survey data from an international airline carrier. The data consists of monthly state level economic data from the Gallup-Healthways Poll, survey data on customer experience factors and personal income, and transaction data on service purchase frequency and revenue. We estimate the models using a dynamic panel generalized method of moments (GMM) estimation (Arellano and Bond 1991) method. Last, we validate the results of our hypothesized model using data collected from a controlled experiment.

This work makes several contributions to the marketing literature. First, we show that the impact of customer experience factors on service purchase behaviors is moderated by the strength of the economy. Specifically, we demonstrate that customer experience factors matter more when economic times are better. This novel finding counters much of the recent wisdom that claims that firms need to focus on customer service when economic times are poor (e.g., Allen 2011, McGregor et al. 2009). Instead, we argue that when the state of the economy is poor, customers are especially price sensitive, making the relative importance of customer experience smaller. In contrast, at higher levels of economic prosperity, customers are less focused on price; this increases the relative importance of customer experience and makes its effects on service purchase behaviors more pronounced. Thus, we advocate that service firms focus more on customer experience when the economy is doing better, not worse. Second, by examining the interplay between the macro and microeconomic environment, we account for individual heterogeneity in terms of how personal income influences consumers' responses to macroeconomic conditions. We establish that lower income consumers are more sensitive to different levels of the economy than higher income consumers. Thus, while higher income consumers spend more in general, the change in purchase behavior resulting from a better economy is greater for lower income consumers. Third, we replicate the effects of customer experience variables (e.g., satisfaction, service failure, recovery) on customer outcomes from past research using rich panel data. While past research has often relied on stated intentions from experimental scenarios or surveys created by researchers, our study uses real purchase behaviors from panel transaction data combined with a rich text analysis of survey comments filled out by actual customers. In addition, we validate the robustness of our results from the hypothesized model using experimental data and establish that changes in the macro economy influence individual perceptions above and beyond one's personal income; this validates the use of aggregate measures of the economy to examine individual purchase behaviors. Notably, we replicate the results of the hypothesized model, providing internal validity to our results.

2. Theoretical Background and Hypotheses

Price sensitivity is among the most important and widely studied areas of marketing scholarship (e.g., Bijmolt et al. 2005, Tellis 1988). A large body of literature suggests that consumers' overall assessment of the value of a good or service is based on their perceptions of what is received versus what is given up (Zeithaml 1988). Therefore, perceived value, commonly defined as the ratio of the perceived benefits of the product to the perceived sacrifice in acquiring them (Lam et al. 2004), is positively influenced by benefits and negatively influenced by price (Woodruff 1997, Zeithaml 1988). An implicit assumption is that the higher the perceived benefits of a product, the higher the consumer's willingness to pay (WTP), albeit constrained by budget or competitive forces (e.g., McFadden 1986, Zeithaml 1988). Price sensitive customers see a sizeable drop in the value of a service for a given increase in price.

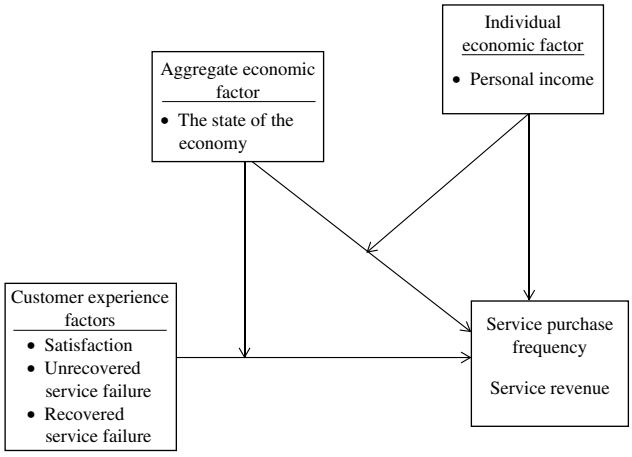
An especially interesting point is whether there is a relationship between the macroeconomic environment and price sensitivity. An economic recession can affect consumer expenditures in several ways. First, it can reduce disposable income (through unemployment, pay cuts, lower investment returns, etc.), which, in turn, leads to a smaller budget for consumption. Second, holding disposable income constant, people tend to save more or pay down debt during a recession, which again leads to less money spent on goods and services (Kamakura and Du 2012). Kamakura and Du (2012) show that the value a household derives from certain products can vary depending on whether the economy is growing or contracting. On average, price sensitivity is inversely related to the health of the economy: It increases as the economy worsens. Accordingly, we postulate that demand for services, in terms of how often a customer is willing to purchase and how much he is willing to spend will depend on the general health of the economy.

Central to the thesis of this paper is the notion that the effects of customer experience (i.e., satisfaction, unrecovered and recovered service failures) will be more (or less) pronounced depending on the health of the economy. To construct our interaction effect arguments, we rely on insights from the existing literature on relative attribute importance. People generally intend their choices to reflect their preferences. The overall utility for the product is the sum of the partworths for the product's levels on the different attributes (Green and Srinivasan 1978). Indeed, the partworth, or weight, of a specific attribute level for an individual consumer can shift based on the relative importance of one attribute over another (Evangelidis and Levav 2013). For example, Drolet et al. (2009) show that cognitive load affects choice by increasing the importance of externally available information because prestored self-goal information is less accessible. This suggests that the relative importance, or partworth, of internally available information decreases as cognitive load increases. Parker and Schrift (2011) show that when respondents are allowed to make a no-choice decision, the relative importance of enriched attributes (i.e., those that require more thought and are more difficult to compare) increases while the relative importance of comparative attributes (i.e., those that are relatively easy to compare) decreases. In a services context, Sun et al. (2012) find that the more uncertainty consumers perceive in purchasing a service, the more they weigh nonalignable attributes (i.e., attributes that one option has and the other option does not). This suggests that situational factors influence the relative partworth of attributes, ultimately influencing their role in driving choice.

Given that the relative importance of attributes can shift (Evangelidis and Levav 2013, Parker and Schrift 2011, Sun et al. 2012), we argue that the state of the economy will influence the relative partworths of price sensitivity and customer experience. We contend that how customers rate their experiences with the firm may be the same in a strong versus weak economy. However, the relative importance of that rating on service purchase decisions is likely to shift based on customers' price sensitivities. When the economy is weak, customers are more price sensitive, and as a result, they should weigh price more heavily relative to when the economy is strong. When the economy is stronger, the importance of price decreases, and as a result, the relative partworth of customer experience increases. Thus, in line with the reasoning proposed and validated by previous research on relative attribute importance, we argue that customer experience factors will play a larger role in influencing customers' service purchase behaviors when the economy is performing better because the relative importance of price will decrease. Although this contradicts anecdotal evidence that firms should focus on customer service when the economy is declining (e.g., Allen 2011, McGregor et al. 2009), we maintain the validity of our argument and demonstrate this in the forthcoming hypotheses.

In sum, we are interested in determining how the state of the economy influences customers' service purchase behaviors, directly and jointly with customer experience and individual-level factors. We focus on two service purchase outcomes, purchase frequency and revenue, which are two key components of a customer's value to the firm (Venkatesan and Kumar 2004). First, we seek to establish the main effect of the economy on service purchase behaviors. Building on the main effect, we then hypothesize on how the economy moderates the relationship between each customer

Figure 1 Conceptual Model



experience variable (satisfaction, unrecovered service failure, and recovered service failure) and service purchase behaviors. We then examine how personal income moderates the influence of the economy on service purchase behavior. The conceptual model is presented in Figure 1.

2.1. The State of the Economy

Consumers' responses to the economy are a function of their ability and willingness to buy (Ma et al. 2011). It is clear that price sensitivity rises when the economy is weak (Estelami et al. 2001, Gordon et al. 2013, Lamey et al. 2007). Under such circumstances, consumers have, on average, smaller budgets making it more difficult for them to buy services. For example, Ma et al. (2011) find that an increase in gas prices leads consumers to switch from buying regularly priced national brands to discounted national brands. Even households whose budgets are not directly impacted by the economy may be more inclined to save more and spend less (Kamakura and Du 2012). Consumer tastes and budget allocations shift systematically with a variation in GDP growth so that nonessential goods and services are preferred during times of economic growth (Kamakura and Du 2012).

In particular, economic conditions influence the individuals' frame of mind, which in turn affects their spending habits (Chhaochharia et al. 2011). Thus, we argue that when the state of the economy is poor, customers are more price sensitive, irrespective of their personal income (which we explore later). As customers' price sensitivities increase, due to a weaker economy, they are less likely to purchase a service, such as airfare, and if they choose to make a purchase, they will spend less. Alternatively, when the economy is performing better, customers are less price sensitive and therefore more willing to make frequent purchases of a higher value. Therefore, we hypothesize:

Hypothesis 1 ($H1_{a/b}$). *When the state of the economy is better,* (a) *service purchase frequency and* (b) *service revenue is greater.*

2.2. The State of the Economy and Satisfaction

A key driver of service relationships is customer satisfaction. Customer satisfaction has been shown to increase the net present value and probability of repurchase for a customer base (Anderson et al. 1994), firms' shareholder values (Gruca and Rego 2005), and firm valuation (Aksoy et al. 2008). Satisfied customers are more willing to pay a premium price for goods and services (Zeithaml et al. 1996), which can be a true source of sustained growth and profit (Anderson and Mittal 2000). This suggests that as customers are more satisfied with the service firm, their purchase frequency and revenue will be higher.

We are primarily interested in how the state of the economy influences the role that satisfaction plays in determining customers' service purchase behaviors. When the economy is weaker, customers become particularly aware of prices (Estelami et al. 2001), especially for nonessential categories because their budgets need to cover essential goods first. If customers decide to make a purchase, they focus on the impact of the purchase on their budget and savings and less on whether they were satisfied with the service. For example, during hard economic times, if a customer has to fly from Atlanta to Chicago, she is likely to be more concerned about the price paid and whether the airline got her to Chicago as opposed to whether she enjoyed her flight or has enjoyed it in the past. If we consider the decision to purchase a service as a sum of partworths (Gordon et al. 2013), then during economic hard times, the relative partworth of customer experience will be lower given that the importance of price is higher. As the importance of price decreases due to a better performing economy, the relative partworth of satisfaction will increase, thus increasing its influence on service purchase decisions. Essentially, we argue that a shift in priorities will occur in terms of how customers derive value. When the economy is relatively weak, customers will primarily derive value from paying lower prices but when the economy is relatively strong, their past satisfaction with the firm will become more important to their purchase decisions. Thus, while higher satisfaction during poor economic times still produces a certain increase in service purchase behaviors compared to when customers are less satisfied, the difference between lower and higher satisfaction will become more prominent when the state of the economy is more positive. Therefore, we hypothesize:

Hypothesis 2 ($H2_{a/b}$). *When the state of the economy is better, satisfaction has a larger positive effect on* (a) *service purchase frequency and* (b) *service revenue.*

2.3. The State of the Economy and Unrecovered Service Failures

Service failures can elicit angry and vengeful thoughts, feelings, and behavioral intentions (Bechwati and Morrin 2003), negative word of mouth (WOM) and complaints, and low repatronage rates (Bougie et al. 2003). Customers perceiving inferior service performance are likely to exhibit behaviors signaling that they are poised to leave or spend less with the company. These behaviors include defection (Richins 1983, Scaglione 1988) and a lower WTP (Zeithaml et al. 1996). An unrecovered service failure increases customers' reluctance to continue to do business with the firm (Maxham and Netemeyer 2002). This suggests that when customers experience an unrecovered service failure, they will lower their purchase frequency and revenue.

We are interested in how the state of the economy influences the role that unrecovered service failures play in determining customers' service purchase behaviors. We argue that when the economy is performing poorly, price will play a larger role in consumers' purchase decisions relative to when the economy is doing better, and as a result, the relative influence of a service failure will be less. While a service failure mars a customer's service experience with the firm, it does not prevent the firm from delivering what the customer paid for in terms of its basic promise (e.g., in the case of the airline industry, transporting the customer to her final destination). When purchase decisions are primarily driven by price, customers are more likely guided by the attitude, "you get what you pay for." On the other hand, when the economy is performing better, customers are less price sensitive so the relative importance, or partworth, of a service failure increases. Thus, while the negative effect of a service failure should exist irrespective of the economic climate, the magnitude of its effect on customers' service purchase behaviors will be more prominent as the economy prospers. Therefore, we hypothesize:

Hypothesis 3 ($H3_{a/b}$). *When the state of the economy is better, an unrecovered service failure has a larger negative effect on* (a) *service purchase frequency and* (b) *service revenue*.

2.4. The State of the Economy and Recovered Service Failures

Recovery efforts by the firm (e.g., compensation, promptness) following a service failure can generate positive behavioral outcomes (Davidow 2003, Smith et al. 1999). In fact, effective recovery efforts can produce a service recovery paradox in which secondary satisfaction (i.e., satisfaction after failure and recovery) is higher than prefailure levels (McCollough et al. 2000). When a customer experiences a service failure, the customer might become angry and perceptions of justice are likely to decrease (Smith et al. 1999); yet, the customer's negative perceptions may be mitigated, to some extent, or even reversed, when recovery efforts are enacted. Customers will likely continue purchasing from, and even pay a higher price to, a service firm that recognizes and corrects its mistakes.

Of particular importance, we want to examine how the state of the economy moderates the effect of service recovery on service purchase behavior. During poor economic times, if a customer considers purchasing a service, especially one that represents a higher share-of-wallet (SOW) (Gordon et al. 2013) or is less essential (Kamakura and Du 2012), the customer is likely to focus more on price and how it will impact budget constraints and less on whether a recovery effort was implemented during a previous purchase occasion. In contrast, when economic times are good and price sensitivity is lower, the relative importance of past experiences with the firm, including efforts to implement recovery, will increase (as a result of the decrease in the relative importance of price sensitivity). Thus, while the positive effect of a service recovery remains intact irrespective of the economic climate, its positive effect on customers' WTP, and thus, their service purchase behaviors, will be greater at higher levels of economic prosperity. Therefore, we hypothesize:

Hypothesis 4 ($H4_{a/b}$). *When the state of the economy is better, a recovered service failure has a larger positive effect on* (a) *service purchase frequency and* (b) *service revenue*.

Thus far, we have argued that customers are impacted by the overall state of the economy, which not only directly influences their service purchase behaviors but also influences the way in which their experiences with a service firm affect their spending. Clearly, the degree to which the state of the economy influences customers' purchase behaviors is likely to depend on personal income (Ma et al. 2011). Next, we explore how personal income moderates the influence of the economy on service purchase behaviors.

2.5. The State of the Economy and Personal Income

Individual spending increases as personal income increases. For example, as personal income rises, spending increases across the board for food, housing, clothing, and recreation. However, the percentage of personal income spent on various categories changes so that there is a shift towards nonessential goods and services (Loeb 1955). More recently, economists have found that increasing the minimum wage increases household spending by increasing discretionary income so that those households have more money to spend after paying for necessities (Aaronson and French 2013). Lower

income households are more price sensitive because they have lower discretionary income (Talukdar and Lindsey 2013). Thus, it is safe to conjecture that the higher a customer's personal income, the higher the service purchase frequency and revenue.

We are interested in how a customer's personal income moderates the degree to which changes in the macroeconomy influence service purchase behaviors. There is considerable evidence that lower income households are more vulnerable to economic downturns than higher income households. For instance, the Great Recession hit lower income households harder with sharper declines in real income and a disproportionate impact on employment opportunities because lower income households tend to be less skilled (Edmiston 2013). Income inequality has continuously increased in the United States where the top decile of households' national income share has been on the rise since the 1970s (Piketty and Saez 2013). So while the top decile of American households was negatively impacted during the Great Recession, these households suffered less than the rest of the country because they had higher incomes and more assets (Piketty and Saez 2013). Thus, a customer's price sensitivity, while impacted by the economy at the state and national level, is likely to be guided by personal income. In particular, a higher income customer can withstand a poor economy because his personal income will prevail and will certainly affect whether he can afford a service and how often. In contrast, for a lower income (and therefore more susceptible) consumer, the state of the economy will have a larger impact on his purchase decisions. As a result, we expect that the higher a consumer's income, the less the state of the economy will influence his purchase behaviors.

Hypothesis 5 ($H5_{a/b}$). *At higher levels of personal income, the state of the economy has a smaller positive effect on* (a) *service purchase frequency and* (b) *service revenue.*

Table 1 summarizes the hypotheses and rationale for the expected effects.

3. Methodology

3.1. Data

A potential challenge to such an investigation is the lack of availability of a longitudinal data set with customer-level transaction history and survey data of satisfaction and experiential variables. We use a unique data set of customers from a *Fortune* 1000 international airline carrier headquartered in the United States. Our observation period is April 2008 to March 2011, during which time each customer's purchase history, survey data, and the firm's marketing communications were recorded. To have longitudinal survey data, we restrict our sample to customers who completed a survey at least three times and had more than four transactions. This produces a sample size of 725 customers with

Table 1 Summary of Hypotheses

Antecedents	Expected effect on service purchase behaviors (purchase frequency and revenue per purchase)	Expected direction	Rationale
State of the Economy ($H1_{a/b}$)	When the state of the economy is better (a) service purchase frequency and (b) service revenue is greater.	+	In a weak economy, even households whose budgets are not directly affected by the economy will be inclined to save more and spend less. In contrast, in a strong economy, customers' confidence will increase and saving behavior will decrease. They will be less price sensitive and will spend more on flights and fly more often.
State of the Economy × *Satisfaction* ($H2_{a/b}$)	When the state of the economy is better, satisfaction has a greater positive impact on (a) service purchase frequency and (b) service revenue.	+	In a better economy, a customer is likely to focus less on price, so the relative importance of past satisfaction with the firm will increase. As a result, satisfaction will have a larger effect on service purchase behaviors than when the economy is weak.
State of the Economy × *Unrecovered Service Failure* ($H3_{a/b}$)	When the state of the economy is better, an unrecovered service failure has a greater negative impact on (a) service purchase frequency and (b) service revenue.	−	In a weak economy, the relative importance of price will be higher than when the economy is stronger. In a strong economy, customers are less price sensitive, making the partworth of unrecovered failures higher. Thus, an unrecovered service failure will have a greater relative negative impact on service purchase behaviors in a strong economy because the importance of price has decreased.
State of the Economy × *Recovered Service Failure* ($H4_{a/b}$)	When the state of the economy is better, a recovered service failure has a greater positive impact on (a) service purchase frequency and (b) service revenue.	+	While a recovered service failure can restore positive attitudes towards the firm, it will have a larger positive effect on purchase behavior in a strong economy than in a weak economy. In a strong economy, customers are less concerned about price, and as a result, the relative partworth of service recovery increases.
Personal Income × *State of the Economy* ($H5_{a/b}$)	At higher levels of personal income, the state of the economy has a smaller positive effect on (a) service purchase frequency and (b) service revenue.	−	A customer's price sensitivity, while impacted by the economy at the aggregate level, is guided by personal income. In particular, if the customer has a higher income, then he will be less sensitive to the state of the economy than will be a customer who has a lower income and is more negatively (positively) impacted by a decline (rise) in the economy.

6,618 flight purchases during the observation period.[1] The data set includes a wide range of rich customer information from exchange characteristics (SOW, purchase frequency and amount, cross-buy frequency and amount), customer satisfaction levels, service experiences (failure and recovery), customer characteristics (gender, age, income, tenure), and firm-initiated marketing efforts (marketing emails).

To account for possible sample selection bias given that we restrict our sample to customers who completed a survey at least three times, we randomly selected 730 customers who made more than one purchase in the same period but did not complete a survey and compared this to our sample. We used multivariate analysis of variance (MANOVA) to determine whether there are significant differences in a vector of five variables: average interflight time (IFT) (in days), average revenue per purchase, age (in years), relationship duration (in months), and frequency of marketing contacts (MC). The MANOVA result indicates that there is no significant difference between the two samples (Wilks $\lambda = 0.99$, $F(5, 1{,}449) = 1.75$, $p > 0.10$). Thus, the issue of selection bias does not affect our study.

In addition, to rule out survival bias, we compared our sample to a random sample of 730 customers who completed a survey one time and to a random sample of 730 customers who completed the survey twice in the same period. The MANOVA result indicates that there is no significant difference across the three samples (Wilks $\lambda = 0.99$, $F(10, 4{,}356) = 1.44$, $p > 0.10$). Thus, the issue of survival bias does not affect our study.

3.2. Variable Operationalization

3.2.1. Dependent Variables. We focus on two service purchase behaviors: purchase frequency and the monetary value of the purchase (Neslin et al. 2006, Kushwaha and Shankar 2013). Given the panel structure of the data, modeling the time between purchases (interpurchase time) is more appropriate than a count of purchases, which is typically used for cross-sectional data. Insights from the estimation of interpurchase time can be applied to purchase frequency. Given our empirical context, we use IFT as the first dependent variable. IFT is calculated as the time (in days) between the previous observed flight, $j-1$, and the current observed flight, j. To satisfy the distributional assumptions of the specified model (description to follow), we log transform the IFT variable (Venkatesan and Kumar 2004). Some customers in the sample flew more than once on a given day,[2] rendering their IFT as zero. To avoid a negative logarithm transformation value due to a zero value for IFT, we add a value of 1 to all of the IFT values. Thus, our measure of IFT is $\log(IFT + 1)$.

The second dependent variable, revenue per flight (*RPF*), is measured using the revenue of flight j. RPF includes airfare and cross-buy revenue. Ancillary sources of cross-buy revenue include purchases from the airline's loyalty program partners, upgrades, cancellation fees, change of itinerary fees, trip protection, and baggage fees. We sum the cross-buy revenue associated with flight j and add this to the RPF at flight j. The range of RPF of a one-way trip is \$51 to \$232 (10% and 90% percentile). We do not log transform RPF because the Jarque-Bera test failed to reject the null hypothesis that RPF is normally distributed ($p > 0.10$) (Jarque and Bera 1987).

3.2.2. Independent Variables. We measure three groups of independent variables: economic, customer experience, and control. The measures are described in Table 2.

Economic Variables. We captured the *state of the economy* using data published by Gallup-Healthways (Gallup-Healthways Website 2012). The measure is an average score of six domains (range: 1–100) of perceived economic well being: life evaluation, emotional health, physical health, healthy behaviors, work environment, and basic access to resources. To collect this data, Gallup-Healthways interviews 500 adults in the United States each day, gathering data on their perceptions of the economy on six domains, and publishes state-level data on a monthly basis. Based on residence data provided by the sample airline, we matched each customer to the corresponding state-level economy measure to produce monthly, customer-level economy measures. We captured a customer's *personal income* using from the surveys, which asked customers to indicate their annual household income.

Customer Experience Variables. The customer experience variables, including *customer satisfaction*, *unrecovered service failure*, and *recovered service failure*, were measured using the panel survey data.[3] The surveys

[1] These numbers are chosen to ensure that the data yields a number of service experiences from each customer, thus enabling us to use lags for Arellano and Bond (1991) GMM estimation.

[2] A flight includes all connecting flights. IFT is 0 days when the customer flies back to the same departure destination on a given day.

[3] We distinguish between customer satisfaction and service failure/recovery and view them as contemporaneous factors. Thus, while considerable research has examined how customer satisfaction evolves as a consequence of service failures and recovery efforts (e.g., Smith et al. 1999, Maxham and Netemeyer 2002, van Doorn and Verhoef 2008), we argue that global satisfaction evaluations (e.g., a customer is asked about his past overall satisfaction with an airline before divulging any information about a failure on a particular flight) about a service firm can co-exist alongside other aspects of the service experience and is not necessarily an outcome of the service encounter. We empirically confirm that customer satisfaction can be treated as a contemporaneous factor with service failure/recovery because the correlations between satisfaction and unrecovered and recovered service failure from our data are low ($\rho = -0.1$ ($p < 0.01$) and $\rho = 0.02$ ($p > 0.05$), for unrecovered and recovered failure, respectively).

Table 2 Variable Definition and Operationalization

Variable	Operationalization
Dependent variables	
$\log(IFT+1)_{i,j}$	Logarithm transformed IFT in days for customer i from flight $j-1$ to j
$RPF_{i,j}$	Total RPF ($) for customer i at flight j
Independent variables	
$State\ of\ the\ Economy_{i,j}$	State of the economy measure for customer i at the time which is one month before the flight j (range 0–100)
$Personal\ Income_{i,j}$	The annual household income ($) of customer i up to flight j
$Satisfaction_{i,j}$	Satisfaction level for customer i up to flight j. Factor score of three items featured in the survey: 1. How would you rate your overall experience on [time] from location [A] to location [B]? (1 = highly unsatisfied, 10 = highly satisfied) 2. How likely are you to fly airline [firm name] for your next trip? (1 = highly unlikely, 10 = highly likely) 3. How likely are you to recommend airline [firm name] to a friend? (1 = highly unlikely, 10 = highly likely)
$Unrecovered\ Service\ Failure_{i,j}$	Whether (1) or not (0) customer i experienced an unrecovered service failure up to flight j
$Recovered\ Service\ Failure_{i,j}$	Whether (1) or not (0) customer i experienced a recovered service failure up to flight j
Control variables	
$\log(IFT+1)_{i,j-1}$	Logarithm transformed IFT in days for customer i from flight $j-2$ to $j-1$
$RPF_{i,j-1}$	Total RPF for customer i at flight $j-1$
$\text{Avglog}(IFT+1)_{i,j-1}$	Average of logarithm transformed IFT in days for customer i up to flight $j-1$
$\log(MC+0.001)_{i,j}$	Level of MC which is the logarithm transformed weekly average number of emails sent to customer i from flight $j-1$ to j (predicted level of MC, $\log(\widehat{MC+0.001})_{i,j}$ used for the model estimation).
$Age_{i,j}$	Age (in years) of customer i at flight j
$Tenure_{i,j}$	Tenure (in months) of customer i at flight j
$Loyalty\ Level_{i,j}$	Whether (1) or not (0) customer i has premium loyalty membership status at flight j
$SOW_{i,j}$	SOW for customer i up to flight j (range 0–1). Flights taken in the last 12 months on the sample airline/the total flights taken on all airlines in the last 12 months
$Award\ Travel_{i,j}$	Whether (1) or not (0) customer i redeemed accumulated points to take a free flight for flight j ($j-1$ for lagged award travel)
$Bookdays_{i,j}$	The time (in days) between the booking and departure for customer i at flight j
$Distance_{i,j}$	Flight distance (in miles) between departure and arrival locations the customer i has taken at flight j

were not completed by each customer for every flight taken in the observation period. The average interval between completed surveys was seven months. Because the sample firm has a policy of not sending a survey to the same customer within six months of the last survey, the completed survey responses tend to reflect average feelings of customer experience during the seven-month interval. Furthermore, the firm asks customers to take into consideration their experiences with the firm in the last six months when providing their ratings. Thus, the survey scores during the average time interval appear to capture average customer experience perceptions. For example, if a customer fills out the first survey on September 15, 2009, after taking a flight on September 13, 2009, and completes the second survey on March 15, 2010, after taking a flight on March 13, 2010, the same survey data, submitted to the firm on September 15, 2009, is used for all purchases between September 13, 2009 and March 13, 2010. The survey data submitted on March 15, 2010 is used for the next set of flights taken after March 13, 2010. We have completed robustness checks to verify this method (results discussed later).

Customer satisfaction was captured using a multi-item measure from the survey. Similar to attitudinal loyalty (Oliver 1999), customer satisfaction can be measured using the customer's overall experience, repurchase intention, and referral intention (see Table 2). As noted earlier, customers' satisfaction ratings are applied to more than one flight as a survey is not completed for each flight taken. We used a factor score of the three items as our measure of customer satisfaction, which loads on the factor at a minimum of 0.86 and has a Cronbach alpha value of 0.91.

To measure unrecovered and recovered service failure, we used a content analysis (Kassarjian 1977) of customers' survey comments. Text analysis is used in the marketing literature to assess attention directed toward relevant issues (e.g., Yadav et al. 2007). Open-ended questions, such as those featured in surveys to airline customers, elicit feedback from customers about their service experiences and often elicit complaints (Dunn and Dahl 2012). In our sample, 561 people (77%) left a comment about their service experience in the survey. We used a three-step procedure to assess our measures from the survey comments (Kassarjian 1977, Zhou et al. 2005). First, two of the authors of this study developed an instruction manual for coding the survey comments. Definitions of unrecovered service failure and recovered service failure (Smith et al. 1999) were included in the manual. Unrecovered service failure was defined as 1 if the customer experienced a failure and no recovery, and 0 if the customer experienced no failure and no recovery. Examples of service failures

were provided including flight delays, cancellations, improper charges, rude employees, uncomfortable seats, and website problems. Recovered service failure was defined as 1 if the customer experienced a failure and a recovery, and 0 if the customer experienced no failure and no recovery. Examples of service recoveries were provided in the manual, which included compensation to customers in the form of vouchers and refunds. If the customer did not experience a failure, the variables unrecovered service failure and recovered failure were both coded as 0, indicating that the two variables are mutually exclusive.

In the second phase, the authors hired two graduate students to independently code the measures for the first 100 survey comments, after which the authors reviewed the coded variables with the raters and reconciled any inconsistencies. In the final phase, the two raters coded the remaining survey comments. The reliability between the two raters was 0.90, allowing us to average their ratings to create the final measures of unrecovered service failure and recovered service failure. We verified the ratings with two senior managers of the firm that provided the data to ensure that the coding was consistent with managerial assessments of the variables. The senior managers reviewed the data and approved the coded variables with 100% agreement.

Control Variables. To account for observed heterogeneity, we include several customer-specific variables. We include *age*, *relationship duration* (*tenure*), and *loyalty level*. To account for the influence of past behavior on future purchases, we also control for *SOW*, *past IFT*, and *past RPF*.

We used customer information provided by the firm to capture age, tenure, and loyalty level. We use self-reports of SOW provided by the customers in the surveys. Customers were asked about the number of flights taken in the last 12 months with the sample airline and with competing airlines. SOW, defined as share of flights in this context, is calculated as the number of flights taken on the sample airline divided by the total flights taken on all airlines.

We use lagged measures of $\log(IFT+1)$ and RPF to incorporate the effects of past behavior on current purchase behavior. Specifically, for observed flight j, these variables represent the customer's activity between observed flights $j-2$ and $j-1$. For example, suppose a customer took three flights between April 2008 and March 2011, September 15, 2009, November 15, 2009, and March 15, 2010. For the IFT model, the dependent variable is the time between purchase $j-1$ and purchase j (the time between November 15, 2009 and March 15, 2010) and the independent variable is lagged $\log(IFT+1)$, which is the time between purchase $j-2$ and purchase $j-1$ (the time between September 15, 2009 and November 15, 2009).

We also control for *frequency of marketing communications*, *award flight*, *flight distance*, and *booking days*. We account for firm-initiated MC using the weekly average number of emails sent to the customer between flights. Because the IFT varies greatly for each customer, we use the weekly average number of emails sent to the customer to incorporate the effect of marketing communications. We log transform the MC variable and add 0.001 (a very small value) to the MC values to avoid a negative value after the logarithm transformation.[4] If the customer used redemption points to purchase a previous flight, this will affect the timing of the purchase and the revenue. Flight distance and the time between the booking date, departure date, and booking days, were used to control for the change in air fare due to changes in distance and booking duration. This data was provided by the firm and the surveys completed by the customers.

4. Model

In this section, we develop a two-equation model to test the proposed hypotheses. We have two dependent variables, IFT and RPF. The IFT and RPF models examine the effects of economic (both at the aggregate and customer level) and customer experience variables. We incorporate observed heterogeneity by including time-varying customer characteristics as control variables. To capture the potential omitted variable bias and the persistence in prior purchase behavior, we include the lag of the dependent variables in each model.

4.1. Model Specification

4.1.1. Interflight Time (IFT) Model. Our conceptual model suggests that the impact of customer experience is moderated by the state of the economy. We include the main effects of state of the economy, satisfaction, unrecovered service failure, recovered service failure, and the three interaction terms between state of the economy and the customer experience variables. We also include the main effect of personal income and the interaction term between personal income and state of the economy. Because interpurchase time in the current state (j) can be affected by the transaction size in the previous state ($j-1$), we include lag revenue per flight in the model. We also include the level of MC between two flights and time-varying customer-specific control variables (age, tenure, loyalty level, SOW, award

[4] The MC variable is transformed to satisfy distributional assumptions. Details are provided in §4.2.

travel in the prior period). Therefore, we specify the IFT model as:

$$\begin{aligned}
&\log(IFT+1)_{ij} \\
&= \beta_0 + \beta_1 ECON_{ij} + \beta_2 INC_{ij} + \beta_3 SAT_{ij} + \beta_4 FAIL_{ij} \\
&\quad + \beta_5 REC_{ij} + \beta_6 ECON_{ij} \times SAT_{ij} + \beta_7 ECON_{ij} \times FAIL_{ij} \\
&\quad + \beta_8 ECON_{ij} \times REC_{ij} + \beta_9 INC_{ij} \times ECON_{ij} \\
&\quad + \beta_{10} \log(IFT+1)_{ij-1} + \beta_{11} RPF_{ij-1} \\
&\quad + \beta_{12} \log(MC+0.001)_{ij} + \beta_{13} Age_{ij} + \beta_{14} Tenure_{ij} \\
&\quad + \beta_{15} Loyalty_{ij} + \beta_{16} SOW_{ij} + \beta_{17} Award_{ij-1} \\
&\quad + \eta_i + \varepsilon_{ij}, \qquad (1)
\end{aligned}$$

where,

$\log(IFT+1)_{ij}$ = Logarithm transformed IFT in days for customer i from flight $j-1$ to j

$ECON_{ij}$ = State of the economy measure for customer i at time which is one month before flight j

INC_{ij} = Personal income of customer i up to flight j

SAT_{ij} = Satisfaction level (i.e., factor score of three items) for customer i up to flight j

$FAIL_{ij}$ = Whether (1) or not (0) customer i experienced an unrecovered service failure up to flight j

REC_{ij} = Whether (1) or not (0) customer i experienced a recovered service failure up to flight j

RPF_{ij-1} = Total RPF for customer i at flight $j-1$

$\log(MC+0.001)_{ij}$ = Logarithm transformed level of MC which is the weekly average number of emails sent to customer i from flight $j-1$ to j

Age_{ij} = Age (in years) of customer i at flight j

$Tenure_{ij}$ = Tenure (in months) of customer i at flight j

$Loyalty_{ij}$ = Whether (1) or not (0) customer i has premium loyalty membership at flight j

SOW_{ij} = SOW of customer i up to flight j

$Award_{ij-1}$ = Whether (1) or not (0) customer i redeemed points to take free flight for flight $j-1$

η_i = Time invariant error component

ε_{ij} = Random error.

4.1.2. Revenue per Flight (RPF) Model. We include the lag of the dependent variable to account for omitted variable bias and inertial conditions. Considering that past flight purchase frequency affects the current transaction size, we include *lagged average IFT* as an independent variable in the model. We also include the level of MC between two flights and the time-varying customer-specific control variables (age, tenure, loyalty level, SOW). Additionally, we include flight-specific characteristics such as award travel, booking days, and distance. Similar to the IFT model, we examine how the state of the economy moderates the effects of customer experience variables on RPF and how personal income changes customers' responses to the economy. Therefore, we specify the RPF model as:

$$\begin{aligned}
RPF_{ij} &= \gamma_0 + \gamma_1 ECON_{ij} + \gamma_2 INC_{ij} + \gamma_3 SAT_{ij} + \gamma_4 FAIL_{ij} \\
&\quad + \gamma_5 REC_{ij} + \gamma_6 ECON_{ij} \times SAT_{ij} \\
&\quad + \gamma_7 ECON_{ij} \times FAIL_{ij} + \gamma_8 ECON_{ij} \times REC_{ij} \\
&\quad + \gamma_9 INC_{ij} \times ECON_{ij} + \gamma_{10} RPF_{ij-1} \\
&\quad + \gamma_{11} \text{Avglog}(IFT+1)_{ij-1} + \gamma_{12} \log(MC+0.001)_{ij} \\
&\quad + \gamma_{13} Age_{ij} + \gamma_{14} Tenure_{ij} + \gamma_{15} Loyalty_{ij} \\
&\quad + \gamma_{16} SOW_{ij} + \gamma_{17} Award_{ij} + \gamma_{18} Bookdays_{ij} \\
&\quad + \gamma_{19} Distance_{ij} + \varphi_i + \omega_{ij}, \qquad (2)
\end{aligned}$$

where,

RPF_{ij} = Total RPF for customer i at flight j

$\text{Avglog}(IFT+1)_{ij-1}$ = Average of logarithm transformed IFT in days for customer i up to flight $j-1$

$Award_{ij}$ = Whether (1) or not (0) customer i redeemed points to take free flight for flight j

$Bookdays_{ij}$ = The time (in days) between the booking and departure for customer i at flight j

$Distance_{ij}$ = Flight distance (in miles) between departure and arrival locations the customer i has taken at flight j

φ_i = Time invariant error component

ω_{ij} = Random error.

4.2. Challenges in Model Estimation

To estimate the proposed model specification outlined in the previous section, two challenges arise: accounting for heterogeneity and endogeneity.

Heterogeneity. We addressed both unobserved and observed heterogeneity in the model. As stated in the model section, to account for observed heterogeneity, we include time-varying customer characteristics (e.g., age, tenure, etc.). We also accounted for individual heterogeneity in response to varying economic conditions by including the interaction between personal income and the state of the economy. Because the correlation between the unobservable customer factors (η_i in Equation (1) and φ_i in Equation (2)) and the lagged dependent variables ($\log(IFT+1)_{ij-1}$ and RPF_{ij-1}) can give rise to dynamic panel bias (Nickell 1981), we removed the unobserved customer characteristics in the model using a difference equation. We use the first-difference of Equations (1) and (2), which removes the time-invariant error components and produces change-change models (e.g., $\Delta\log(IFT+1)_{ij} = \log(IFT+1)_{ij} - \log(IFT+1)_{ij-1}$).

Endogeneity. In the change-change models, the first-difference lagged dependent variable is correlated with difference in the error term (e.g., $\Delta\log(1+IFT)_{ij-1}$ and $\Delta\varepsilon_{ij}$), causing endogeneity bias to arise. Therefore, we used a difference GMM estimator proposed by Arellano

and Bond (1991), which includes lagged values of the endogenous variables as instruments. Consistent with applications used in past research, we used the first two lags of the endogenous variables as instruments for the one-period lagged difference model to produce consistent parameter estimates (Dutt and Padmanabhan 2011, Moorman et al. 2012, Rego et al. 2013). For example, we used $\log(IFT+1)_{ij-2}$ and $\log(IFT+1)_{ij-3}$ as instruments for the endogenous lagged dependent variable, $\Delta\log(1+IFT)_{ij-1}$, under the assumption that there is no second-order serial correlation. Valid instruments should be correlated with the endogenous variables yet be independent of the error terms. To test the validity of the instruments, we examined the AR(2) statistics to test the null hypothesis that the differenced error terms are not correlated; we checked the Hansen's J statistic to test the valid instrument overidentification restrictions (Roodman 2009).

Endogeneity bias can also occur due to the inclusion of the MC variable in the models. The firm's marketing communications influence customers' demand for services. However, the level of MC made by the firm can depend on the past purchase behavior of the customer (Venkatesan et al. 2007). For example, level of MC between flight $j-1$ to j can be influenced by the IFT from flight $j-2$ to $j-1$. Therefore, to address the endogeneity in the level of MC, we use the two-stage least squares (2SLS) approach where we attain the predicted value of level of MC (i.e., $(\log(\widehat{MC+0.001})_j)$ using the instrumental variables, $\Delta\log(1+IFT)_{ij-1}$ and ΔRPF_{ij-1}). We use the predicted value of MC as a predictor in the IFT and RPF models. Therefore, given the aforementioned unobserved heterogeneity and endogeneity concerns, we use a difference GMM estimator to obtain unbiased and consistent parameter estimates in the two models.[5]

5. Empirical Analyses and Results

The descriptive statistics and correlation matrix for the data are provided in Table 3. The average IFT for the sample of customers is 52.7 days and the average RPF is \$124.70. The average level of satisfaction of customers with the sample firm is 9 on a 10 point scale with a standard deviation of 1.4 points. The average level of the state of the economy is 66.3 on a 100 point scale with a range of 64.9 to 68.1. While this is a seemingly small range, even a tenth of a point change in this well-being measure is associated with significant changes in the Dow Jones Industrial Average (Mendes 2010), demonstrating that this range represents high variability in the economy. The average

[5] The IFT and RPF models are estimated independently due to the low error correlation between the two models ($\rho = 0.01$, $p > 0.1$).

Table 3 Descriptive Statistics and Correlation Matrix ($N = 6{,}618$)

Variable	Mean	Std. dev.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. *IFT* (days)	52.7	55.6	1														
2. *RPF* (\$)	124.7	81.6	0.02**	1													
3. *State of the Economy*	66.3	0.6	0.06***	0.07***	1												
4. *Personal Income* (\$)	99,916.7	39,878.3	−0.11***	0.04***	0.04***	1											
5. *Satisfaction*	9.0	1.4	−0.06***	0.05**	−0.02**	−0.004	1										
6. *Unrecovered Service Failure*	47.4%	0.4	0.05***	−0.03**	0.03	0.01	−0.10**	1									
7. *Recovered Service Failure*	5.5%	0.2	0.03**	0.02**	0.01	0.003	0.02	−0.08***	1								
8. *Level of MC*	2.3	2.4	−0.24***	0.03***	0.05***	0.02	0.05***	−0.03**	−0.001	1							
9. *Age* (years)	54.0	14.6	−0.01	−0.08***	0.03*	0.15***	0.15***	−0.003	−0.01	0.04***	1						
10. *Tenure* (months)	48.2	26.8	0.06***	−0.05	−0.10**	0.04***	0.04***	0.05***	0.05***	0.001	0.08***	1					
11. *Loyalty Level*	8.8%	0.3	−0.19***	0.05**	−0.11**	0.21***	0.14***	−0.04***	−0.05***	0.02	−0.12***	0.02**	1				
12. *SOW*	0.49	0.2	−0.07***	−0.04**	−0.05***	−0.13***	0.19***	−0.11***	0.01	0.04***	0.09***	0.06***	0.19***	1			
13. *Award Travel*	4.6%	0.2	−0.03**	−0.34***	−0.01	0.01	0.02	−0.02	0.02	0.03***	−0.002	0.05***	−0.01	0.02	1		
14. *Booking days*	49.1	47.6	0.13***	−0.08***	−0.004	0.04***	−0.01	−0.003	0.03**	−0.005	0.15***	0.03**	−0.21***	0.01	0.02**	1	
15. *Distance* (miles)	832.1	361.2	0.08***	0.23***	0.06***	0.01	−0.04***	0.04***	0.0003	−0.02	0.07***	−0.05***	−0.18***	−0.06***	0.005	0.20***	1

*$p < 0.1$; **$p < 0.05$; ***$p < 0.01$.

personal income is \$99,917. Three hundred and forty-four customers experienced a service failure and 40 customers experienced a service recovery.

To validate the use of applying the same survey ratings to more than one purchase occasion, we used a split-sample analysis approach. We divided our sample into two subsamples. In the first, the survey response was applied to customers who took only one flight after the survey was completed ($n_1 = 453$); in the second subsample, the survey response was applied to customers who took more than one flight after the survey was completed ($n_2 = 6{,}165$). We then took multiple random samples of the customers from the second subsample such that the sample size between the two subsamples were similar ($n_1 = 453$, and $n_2 = 460$ (on average) for each of the respective samples). The hypothesized model was estimated using the two subsamples. The results were then compared with the original model results. The coefficients are similar across the two subsamples and the original sample in terms of direction of the effects and significance. These results show that the constraint of the periodicity of the surveys is not a threat to the validity of the results.

5.1. Model Results

The model estimation results are presented in Table 4, which also shows model fit, test results of serial correlation, and instrument validity. Pertaining to the nonhypothesized main effects, personal income has a negative effect on IFT ($b = -0.000001$, $p < 0.05$), implying a positive effect on purchase frequency, and a positive effect on RPF ($b = 0.0001$, $p < 0.01$). Satisfaction has a negative effect on IFT ($b = -0.012$, $p < 0.01$), implying a positive effect on purchase frequency, and a positive effect on RPF ($b = 8.163$, $p < 0.05$). Unrecovered service failure has a positive effect on IFT ($b = 0.056$, $p < 0.01$), implying a negative effect on purchase frequency, and a negative effect on RPF ($b = -4.349$, $p < 0.05$). Finally, recovered service failure has a positive effect on IFT ($b = 0.041$, $p < 0.05$), implying a negative effect on purchase frequency, but has a positive effect on RPF ($b = 5.921$, $p < 0.01$). While the positive effect on RPF was expected, the positive effect on IFT was not. It may be that when a customer experiences a service failure, she will purchase the service less frequently. However, when the firm implements a recovery effort, the recovery will then reduce the negative effect of service failure on purchase frequency.

Table 4 Dynamic Panel Model Results

	IFT model[a]		RPF model	
	Parameter est.	Robust err.	Parameter est.	Robust err.
Economic factors				
State of the Economy$_j$	−0.019	0.007***	7.976	3.459***
Personal Income$_j$	−0.000001	0.0000004**	0.0001	0.00002***
Customer experience factors				
Satisfaction$_j$	−0.012	0.005***	8.163	3.495**
Unrecovered Service Failure$_j$	0.056	0.021***	−4.349	2.188**
Recovered Service Failure$_j$	0.041	0.019**	5.921	1.736***
Interaction effects				
State of the Economy$_j$ × *Satisfaction*$_j$	−0.022	0.008***	2.604	1.321**
State of the Economy$_j$ × *Unrecovered Service Failure*$_j$	0.021	0.008***	−9.530	11.857
State of the Economy$_j$ × *Recovered Service Failure*$_j$	0.024	0.061	8.960	3.746**
Personal Income$_j$ × *State of the Economy*$_j$	0.000001	0.0000003***	−0.00004	0.00002**
Control variables				
$\log(IFT+1)_{j-1}$	0.307	0.052***		
RPF_{j-1}	0.033	0.006***	0.121	0.031***
$\text{Avglog}(IFT+1)_{j-1}$			0.513	0.254**
$\log(\widehat{MC}+0.001)_j$	−0.030	0.006***	0.487	0.184***
Age$_j$	−0.0002	0.0002	−0.019	0.008**
Tenure$_j$	0.020	0.010**	−0.192	0.273
Loyalty Level$_j$	−0.072	0.025***	13.496	8.009
SOW$_j$	−0.264	0.083***	−14.153	10.295
Award Travel$_{j-1}$ (IFT)/*Award travel*$_j$ (RPF)	−0.072	0.031**	−103.899	4.782***
Booking days$_j$			−0.626	0.029***
Distance$_j$			0.040	0.005***
Model details				
Number of observations	6,618		6,618	
Parameters	17		19	
Wald χ^2 (d.f.)	285.62 (17)***		1,754.82 (19)***	
AR(II) test: z-score	1.22		−1.41	
Hansen's J test: χ^2 (d.f.)	116.53 (114)		101.39 (114)	

Note. Values with no asterisks are not statistically significant at $p \geq 0.05$.

[a]A positive effect on IFT implies a negative effect on purchase frequency and vice versa.

**$p < 0.05$; ***$p < 0.01$.

With respect to the hypothesized effects, we proposed that when the state of the economy is better, (a) service purchase frequency, and (b) service revenue will increase. We find that state of the economy has a negative effect on IFT ($b = -0.019$, $p < 0.01$), implying a positive effect on purchase frequency, and a positive effect on RPF ($b = 7.976$, $p < 0.01$), supporting $H1_a$ and $H1_b$. These coefficients represent the effect of the state of the economy on a customer with average personal income. With respect to the contingent effects of economic and customer experience variables on service purchase frequency and revenue, the interaction effect between the state of the economy and satisfaction has a negative effect on IFT ($b = -0.022$, $p < 0.01$), implying a positive effect on purchase frequency, and a positive effect on RPF ($b = 2.604$, $p < 0.05$). Thus, we find support for $H2_a$ and $H2_b$, indicating that when the state of the economy is better, satisfaction has a larger positive effect on (a) purchase frequency, and (b) service revenue.

The interaction between the state of the economy and unrecovered service failure has a positive effect on IFT ($b = 0.021$, $p < 0.01$), implying a negative effect on purchase frequency; it has no effect on RPF ($b = -9.53$, $p > 0.05$). Thus, we find support for $H3_a$ but not $H3_b$, suggesting that when the state of the economy is better, unrecovered service failures have a larger negative effect on service purchase frequency. The nonsignificant effect on RPF suggests that while unrecovered service failure has a negative effect on service revenue in general, its impact does not increase at higher levels of economic prosperity.

The interaction between the state of the economy and recovered service failure has a positive effect on RPF ($b = 8.96$, $p < 0.05$) but does not affect service purchase frequency ($b = 0.024$, $p > 0.05$). Thus, in support of $H4_b$ but not $H4_a$, we find that the positive relationship between recovered service failure and service revenue is stronger when the state of the economy is better. Considering the negative main effect of recovered service failure on service purchase frequency, the nonsignificant interaction suggests that when a customer encounters a service failure, despite it being recovered, the negative effect persists. Furthermore, this negative effect does not change (i.e., is not less negative) based on the state of the economy. H5 predicts that the positive effect of the state of the economy on service purchase behavior will be lower for customers with higher personal incomes. The results show a positive effect for the personal income and state of the economy interaction on IFT ($b = 0.000001$, $p < 0.01$), implying a negative effect on purchase frequency, and a negative effect on RPF ($b = -0.00004$, $p < 0.05$), suggesting that higher income customers are less affected by the state of the economy, supporting $H5_a$ and $H5_b$.

In addition to the central parameters of interest here, we show the estimation results of the control variables in the IFT and RPF models in Table 4. For the two models, there is a significant persistence in customer and firm behaviors as the lagged dependent variables are all significant. See Table 4 for the estimation results of the control variables.[6]

5.2. Validation of Results

We ran several tests to demonstrate the validity of our model. The results are shown in Table 4. The Wald χ^2 statistics show that the two models are statistically significant ($\chi^2_{17} = 285.62$, $p < 0.01$ for the IFT model, and $\chi^2_{19} = 1{,}794.82$, $p < 0.01$ for the RPF model). Because we use the lags of the endogenous variables as instruments, we check the presence of the second-order serial correlation. The AR(II) test of the two models fails to reject the null hypothesis of no-second-order autocorrelation ($z = 1.22$, $p > 0.1$ for the IFT model and $z = -1.41$, $p > 0.1$ for the RPF model), suggesting that the estimators are consistent (Arellano and Bond 1991). The inclusion of instruments results in more moment conditions than the number of parameters to estimate. Therefore, we check the overidentification of the model and the validity of the moment conditions using the Hansen-J statistic (Hansen 1982). The Hansen J-statistic tests the validity of instruments under the null hypotheses that the instruments are valid. Using the conservative p-value rule suggested by Roodman (2009), the p-value should be between 0.25 and 0.90 in the chi-square distribution with the degrees of freedom equal to the degrees of overidentification. The Hansen statistic test result suggests that the model specifications are appropriate and that the instruments are valid ($\chi^2_{114} = 116.53$, $p > 0.25$ for the IFT model and $\chi^2_{114} = 101.39$, $p > 0.25$ for the RPF model).

5.3. Model Comparisons

To examine the impact of adding economic and customer experience factors and their interaction effects, we estimated two alternative models of IFT and RPF using a dynamic GMM estimation. We computed the adjusted R^2 statistic as the proportion of the fitted value's variance to the dependent variable's variance and compared the nested models. For a baseline model that includes only the control variables, the adjusted

[6] Following the suggestion by an anonymous reviewer, we tested the interaction effects between personal income and the three customer service experience factors (satisfaction, recovered service failure, and unrecovered service failure) on IFT and RPF. We found that only one of six interaction effects is significant (personal income$_j$ × satisfaction$_j$ ($b = -0.0000003$, $p < 0.05$) in the IFT model). Thus, we decided not to continue examination of personal income and customer experience and to focus instead on the interplay between the state of the economy and customer experience. We suggest that future research explore the contingent effects of personal income and customer experience factors on service purchase behaviors.

R^2 is 0.22 for the IFT model and 0.34 for the RPF model. In the second model, to determine whether the addition of economic and customer experience factors increases the variance explained, we added five variables to the model: the state of the economy, satisfaction, unrecovered service failure, recovered service failure, and personal income. The adjusted R^2 is 0.32 for the IFT model and 0.43 for the RPF model. We find that the addition of economic and customer experience factors produce a 45% and 26% improvement in explaining the variance in the IFT and RPF models, respectively. To examine whether the addition of the interaction terms significantly contributes to variance explained, we estimated the adjusted R^2 for the proposed full model. The adjusted R^2 for the full model is 0.37 for the IFT model and 0.47 for the RPF model. We find that there is a further improvement in the variance explained (68% for the IFT model and 38% for the RPF model) compared to the baseline model. The improvement in adjusted R^2 is significantly different across all cases ($p < 0.01$).

5.4. Internal Validation of Hypothesized Model

One limitation of our data is that we use an aggregate measure of the economy to predict individual purchase behaviors. Thus, while we have individual-level customer experience data (satisfaction, unrecovered failures, recovered failures, and personal income) collected through surveys, the state of the economy is measured at the state level by the Gallup-Healthways Poll. As a result, the question arises whether a state (or national) level aggregate measure of the economy is an appropriate measure to predict individual behavior. Furthermore, it would be useful to internally validate the results of the hypothesized model using a more controlled setting. Thus, we conduct an experiment whereby we manipulate the state of the economy (positive versus negative) at the aggregate level and then measure its impact on individual perceptions of the economy as well as individual purchase intentions. In addition, we manipulate customer experience variables including satisfaction and service failure with and without recovery. Therefore, we have a 2 (economy: positive versus negative) $\times$ 2 (satisfaction: high versus low) $\times$ 2 (service failure: recovered failure versus unrecovered failure) experimental design, generating 8 conditions. We also collect respondents' demographic information, including personal income, at the end of the experiment.

5.4.1. Method. Two hundred and seventy-one participants were recruited from the national online subject pool, Amazon Mechanical Turk. All participants received a base payment of \$0.50. In addition, to maximize involvement and attention during the survey, participants were incentivized with the opportunity to win a bonus payment of \$1 based on their performance on a quiz at the end of the study about the details of the experiment. Incentivizing participants with a bonus payment helps ensure that they do not arbitrarily answer questions and instead pay attention to the scenarios and directions. Two hundred and thirty-eight participants received perfect scores on the quiz (showing high involvement) and 50 participants were randomly selected for the bonus payment.

Upon opening the online survey, participants were informed that they would be placed in a hypothetical scenario that mimics real world events that consumers typically face. They were informed about the bonus payment incentive and given explicit instructions on how the experiment would progress. The participants began the main portion of the experiment with a scenario detailing the economic climate.

State of the Economy. In the positive economy condition, participants were told that the economy is doing well, unemployment is low, companies have open positions, the stock market is rising, consumer confidence is high, and neighbors and co-workers feel good about how things are going. Those in the negative economy condition were told the opposite. Please refer to the Web appendix (available as supplemental material at http://dx.doi.org/10.1287/mksc.2014.0862) for the exact wording of the scenarios shown to the respondents. After reading the scenario, respondents were asked to rate the degree to which they agreed/disagreed to several questions pertaining to how they perceive the economy and how concerned they are with their personal financial circumstances on an 11-point Likert scale.

Customer Experience: *Satisfaction*. After the respondents answered questions pertaining to the economy, they were transitioned to the second part of the scenario. The respondents were told to keep in mind what they had read thus far and to next imagine that they were about to embark on a trip within the United States to visit family and friends. They were told to envision the airport and the checking-in and boarding process. They were randomly assigned to one of two conditions for satisfaction: high or low. In the high satisfaction condition, they were told that their previous experiences with the focal airline have always been great and that they have recommended this airline to others in the past. In the low satisfaction condition, respondents were told the opposite about their previous experiences with the focal airline. The exact experimental stimuli used in this study can be found in the Web appendix. Participants then indicated the degree to which they were satisfied with the focal airline on an 11-point Likert scale (-5 = extremely dissatisfied, 5 = extremely satisfied).

Customer Experience: *Failure/Recovery*. The participants were randomly assigned to one of two conditions:

recovered failure and unrecovered failure. Thus, while all participants saw a service failure, the manipulated variable was whether a recovery took place. The service failure entailed a two-hour delay due to a mechanical problem, reminding the participants that their plans with friends and family were likely to be disrupted. In the recovery condition, the participants were notified that the pilot apologized for the delay and offered complimentary Internet access, a snack box, and a beverage of their choice. The participants were then asked to rate how they feel about the delay on an 11-point Likert scale (-5 = very upset, 5 = to not upset at all).

Manipulation checks confirm that, for the manipulated variables, information/framing led to more optimistic perceptions of the economy in the positive (versus negative) economy condition, more positive satisfaction ratings in the high (versus low) satisfaction condition, and better perceptions of the delay in the recovered failure (versus unrecovered failure) condition. All of the manipulations were statistically significant ($t > 2$).

Personal Income. At the end of the survey, participants were asked to choose from a list of income ranges that best corresponded with their personal annual income.

Dependent Variable. Participants were then told to imagine that they needed to purchase an airline ticket for an upcoming flight. We told them that the average price for a domestic roundtrip ticket was \$300. They then indicated how much they were willing to pay for a future domestic flight with the airline using a sliding scale (\$0 to \$600).

5.4.2. Results. *Does an aggregate measure of the economy influence individual perception*? To verify that the economy manipulated at the state and national levels influences individual perceptions of the economy, we compared how participants in the positive and negative economic conditions responded to the following question, "How do you evaluate your life based on the economic situation described above?" on an 11-point Likert scale (-5 = struggling, 5 = thriving). Participants in the positive economic condition (mean = 8.73) indicated that they felt better about their life circumstances than participants in the negative economic condition (mean = 4.81; $\text{difference}_{\text{positive versus negative}}$: $t = 15.56$, $p < 0.0001$). In addition, respondents reported their agreement on an 11-point Likert scale (-5 = strongly disagree, 5 = strongly agree) with the following statement, "I feel like I should conserve my resources right now." Participants in the negative economic condition (mean = 9.36) indicated that they felt more strongly about conserving their resources than participants in the positive economic condition (mean = 6.51; $\text{difference}_{\text{positive versus negative}}$: $t = 11.00$, $p < 0.0001$), confirming that the aggregate economic manipulation significantly influenced individual perceptions of the need to save money.

Then, to test whether such individual perceptions of the economy influence individual purchase intentions, we regressed respondents' WTP for an airline ticket (mean = \$224, std. dev. = \$88) on their perceived need to conserve resources. We find a negative relationship between perceived need to conserve resources and WTP ($b = -2.96$, $p < 0.05$) such that those who are more concerned about conserving resources (i.e., those in the negative economic condition) were less willing to pay for a future flight. We find these results to be consistent with our proposed model in that when the economy is performing well, customers spend more and when it is declining, revenue and purchase frequency decrease. Overall, our experiment validates the use of an aggregate measure of the economy to predict individual perceptions and purchase outcomes.

An alternative demonstration of the hypothesized model. To examine whether we can replicate the findings of the hypothesized model using a controlled lab experiment, we regress WTP on state of the economy (positive versus negative), satisfaction (high versus low), and failure (recovered versus unrecovered), personal income, and the interaction effects between state of the economy and satisfaction, failure, and personal income.

As expected, satisfaction ($b = 13.63$, $p < 0.001$), recovered failure, ($b = 13.77$, $p < 0.001$), and personal income all have a positive effect on WTP ($b = 24.99$, $p < 0.001$). With respect to the hypothesized effects, we first proposed that the state of the economy will have a positive effect on service purchase behaviors. Consistent with H1, a positive economy has a positive effect on WTP ($b = 5.38$, $p < 0.01$). These results mirror those found using the panel survey and transaction data. With respect to the interaction effects between the state of the economy and customer experience variables, the results from the experiment indicate that the interaction between the state of the economy and satisfaction is positive ($b = 1.52$, $p < 0.001$). This supports H2 and is consistent with the results found using the panel survey and transaction data. While the models using the panel survey and transaction data compared an unrecovered and a recovered service failure to a baseline of no failure at all, generating two separate variables and two separate hypotheses (H3 and H4), for the sake of simplicity, we restricted the experiment to service failures in which the conditions varied based on whether the failure was recovered. The findings from the experiment reveal a positive interaction effect between the state of the economy and a recovered (versus unrecovered) failure on WTP ($b = 1.23$, $p < 0.001$). Finally, the interaction effect between the state of the economy and personal income is negative ($b = -3.04$, $p < 0.001$), which is consistent with the results of the

panel survey and transaction data analysis and confirms H5. Overall, the results from the experiment mirror those from the panel data analysis, providing an alternative demonstration of the direct effect of the state of the economy on service purchase behaviors and its interaction effects with customer experience and personal income.

6. Discussion

The objective of our study was to assess how the state of the economy interacts with customer experience and personal income to influence customers' service purchase behaviors. Of primary concern was addressing the important question of whether customer experience matters more when the state of the economy is more positive or negative. Using panel transaction and survey data from an international airline firm, we tested a conceptual model relating the state of the economy and its interactions with customer experience variables (satisfaction, unrecovered service failure, and recovered service failure) and the individual characteristic of personal income to service purchase frequency and revenue using a dynamic panel GMM estimation. Furthermore, using an experiment, we provided additional validation of the hypothesized model and confirmed the use of an aggregate measure of the economy to inform individual-level perceptions of the economy, and subsequently, individual-level purchase intentions. Our results offer novel insights on the roles that economic, customer experience, and individual customer-level factors play in driving customers' service purchase behaviors:

1. Customer experience matters more when the state of the economy is more positive. During positive economic times, it becomes all the more important for service firms to improve customer experience by increasing satisfaction, reducing failures, and implementing recovery efforts to enhance the positive effects of a good economy.

2. Lower income consumers are more sensitive to the state of the economy than higher income consumers. In a better economy, while both higher and lower income consumers are likely to spend more, the increase (delta) in spending from a poorer economy to a better economy is larger for lower income consumers.

3. After controlling for behavioral and demographic variables, economic and customer experience factors emerge as useful indicators of service purchase behavior. For a baseline model with only control variables, the adjusted R^2 is 0.22 and 0.34 in service purchase frequency and revenue, respectively. After adding the main effects of economic and customer experience factors to the baseline model, the adjusted R^2 is 0.32 and 0.43, respectively. When we add the interaction effects with the state of the economy, the adjusted R^2 is 0.37 for purchase frequency and 0.47 for revenue. This highlights the importance of the state of the economy in predicting customers' service consumption.

4. Results from an experiment confirm that measures of the economy at the state and national levels do, in fact, influence individual-level perceptions of the economy. In addition, the results provide an alternative demonstration of the hypothesized model.

6.1. Theoretical Implications

Past work on appraising customer value (e.g., Venkatesan and Kumar 2004) has commonly focused on customers' past actions, including how much they spent, how often they made a purchase, and the type of product(s) they purchased, with recent advances incorporating the effect of product return behavior (e.g., Petersen and Kumar 2009). While insightful, such studies overlook how economic and customer experience factors affect customers' service purchase behaviors. More recently, marketing research has begun to examine the effects of changes in the economic climate on outcomes such as price elasticity (e.g., Gordon et al. 2013) and demand for conspicuous versus nonconspicuous products (e.g., Kamakura and Du 2012). Still, there has been little research in marketing on the critical role the economy plays in determining consumer demand for services based on their previous experiences with the service firm. In particular, we know little about how the state of the economy influences the way in which customers' past service experiences influence their future purchase decisions.

Our findings show that at more positive levels of the economy, customers are not only more willing to make service purchases more frequently but also are willing to pay more for each purchase. Of particular importance, we find that when the state of the economy is better, the effects of the customer experience variables on service purchase behaviors become more prominent. For instance, the positive effect of a customer being satisfied with the service firm is larger when the state of the economy is more positive. Similarly, the negative effect of unrecovered service failures and the positive effect of recovered service failures are both larger when the state of the economy is more positive. We posit that the relative importance of customer experience increases at more positive levels of the economy because the relative importance of price decreases. These results contribute to the emerging literature on the effect of the economy on customer behavior (e.g., Gordon et al. 2013, Kamakura and Du 2012) by demonstrating that customer service experience matters more when the economy is doing better. The results also demonstrate that while, in general, the economy at the aggregate level influences a customer's service purchase behaviors, the degree to which it does depends on his income. Specifically, for a customer

with a higher personal income, the influence of the state of the economy is lower than for a customer with a lower personal income. From a theoretical perspective, it is important to take into account both aggregate economic indicators as well as customers' individual incomes when attempting to understand what influences customers' purchase decisions.

The results also contribute to the services literature on satisfaction, service failure, and recovery (e.g., Smith et al. 1999, Maxham and Netemeyer 2002, Morgan and Rego 2006) by demonstrating how the state of the economy influences the way in which customers' past experiences with the service firm influence their future purchase decisions. Customer experience matters more to customers, in terms of when to make another service purchase and how much to pay for it, when the economy is doing better. Current research on services often focuses on service experience and customer characteristics, overlooking how more macro indicators influence service consumption. Future research in the services area would benefit from incorporating macroeconomic factors into conceptual and empirical models.

6.2. Managerial Implications

Amid a struggling economy, experts caution firms against cutting costs where it matters: customer service. For example, it has been said that customer service will differentiate a firm from the competition in any economic climate. However, during a recession, the difference is more obvious. The recession has exposed firms that have poor customer service and spotlighted those with consistently outstanding customer service (Allen 2011). Just as companies are dealing with plummeting sales and sinking employee morale, wary customers want more attention, better quality, and greater value for their money (McGregor et al. 2009). This suggests that firms need to invest more in customer service during economic declines to keep their customer base happy. However, we advocate the opposite. The results of our study demonstrate that customer experience factors including satisfaction, unrecovered service failures, and service recovery efforts matter more when economic times are better, not worse. Thus, while customer experience still matters when the state of the economy is poor, it matters *more* when the economy is doing better. It appears that customers are focused more on price and less on customer experience when the state of the economy is poor. In contrast, at more positive levels of the economy, customers are less price sensitive, and as a result, turn their attention to other aspects of the service encounter, including how satisfied they have been in the past and whether the firm fixed a failure.

These results generate implications for service firms facing changes in the economic environment. Service firms should invest in improving overall customer service, reducing failures, and implementing service recoveries when people are in general more optimistic about the economy. Managers should be cognizant of the fact that customers' service experiences matter more when the economy is doing better, as opposed to when it is struggling. When the economy is doing worse, service firms should emphasize value by communicating lower prices and why their services are cost-effective. Service firms can explore the use of cost-saving initiatives (e.g., operational efficiency) to offer customers better deals. When the economy is performing better, they should emphasize how they provide a superior experience (e.g., comfort, speed, reliability). Increased investments in frontline employee training and improvements in the tangible aspects of the service (e.g., aircraft, décor) may help boost customer satisfaction. Given that service failures and recoveries matter more in a strong economy, firms should take special care to prevent service failures (e.g., make additional investments in training personnel). In the event of a service failure in a strong economy, firms should implement additional recovery tactics (e.g., compensation, an apology, faster response speed). Thus, managers can adapt how they position their offerings based on the economy.

Additionally, we find that the state of the economy affects lower income consumers more than it affects higher income consumers. When the economy is performing poorly, lower income consumers are more likely to reconsider their service purchases than are higher income consumers. Irrespective of the economy, higher income consumers spend more than lower income consumers do because higher income consumers have more to spend. However, the jump in spending from a poorer economy to a better one is greater for lower income consumers. Thus, when the economy is poor, managers would benefit from providing value-based offers to lower income consumers. When the state of the economy is better, service firms can target lower income consumers with higher margin offerings because their spending habits have changed (improved) considerably. They would also benefit from targeting higher income consumers because they will continue to spend more as the economy improves.

Customized pricing of services is gaining momentum. For example, Delta Airlines developed its pricing system to keep prices high for some customers who are not flexible and lower prices for bargain hunters (Kanell 2013). However, to our knowledge, customer reaction to the economy has not been used in customizing prices of services. We recommend that service firms implement the insights from our research and tailor prices based not only on their customers' demographics (e.g., income) and purchase history (e.g., purchase frequency and revenue), but also based on sensitivities

to macroeconomic conditions. For example, when the economy is strong, airline loyalty programs may want to focus on providing customers with service perks (e.g., upgrades to business class, free wireless) and when the economy is weak, they may want to offer more price discounts. Furthermore, service firms can adjust prices based on how different segments of consumers in different income brackets react to the economy. For example, while higher income customers may also be more responsive to price discounts than service upgrades in a weak economy, they may not need the deepest discounts, as lower income consumers need, to instigate purchases.

7. Limitation and Opportunities for Further Research

Limitations of this study present opportunities for further research. The observation period of the data set included in our study is limited to three years. Further research could consider analyzing data over longer periods to evaluate whether there are any changes in the effects of economic and customer experience factors over time on service purchase behavior. Further validation of these results could be obtained by replicating the research in the context of multiple airline firms or in different industries from those used in this study.

The measurement approach we used to assess customer satisfaction and service experience required the use of multiple survey data points from a single customer over the observation data of three years, requiring us to confine the sample to customers who had taken multiple surveys. Future studies could develop alternative approaches for detecting the prevalence of satisfaction and service experience information. A possible approach entails using richer customer and transaction data sets over a longer time span to allow latent constructs of satisfaction, service failure, and service recovery to emerge.

While we use price sensitivity and relative attribute importance to motivate our hypotheses, we were unable to measure price sensitivity and attribute importance. Rather, we relied on insights from past research to inform our hypotheses. Future research would benefit from capturing customers' price sensitivities along with the importance they place on experience at varying levels of the economy. Finally, while this paper explores whether the state of the economy moderates the influence of customer experience factors on a customer's service purchase behaviors and whether this impact of the state of the economy on a customer's service purchase behaviors is influenced by personal income, other approaches are also possible. Further research could examine alternative conceptualizations such as exploring the moderating effect of the state of the economy on the influence of personal income on purchase behavior and studying the moderating effect of personal income on the influence of customer experience factors on purchase behavior and relating them to our findings.

Supplemental Material

Supplemental material to this paper is available at http://dx.doi.org/10.1287/mksc.2014.0862.

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References

Aaronson D, French E (2013) How does a federal minimum wage hike affect aggregate household spending? *Chicago Fed Letter* (The Federal Reserve Bank of Chicago, Chicago), No. 313, August.

Aksoy L, Cooil B, Groening C, Keiningham TL, Yalçın A (2008) The long-term stock market valuation of customer satisfaction. *J. Marketing* 72(4):105–122.

Allen M (2011) Great customer service in challenging times: The differentiating factor. *Technorati* (August 25), http://technorati.com/business/small-business/article/great-customer-service-in-challenging-times/.

Anderson EW, Mittal V (2000) Strengthening the satisfaction-profit chain. *J. Service Res.* 3(2):107–120.

Anderson EW, Fornell C, Lehmann DR (1994) Customer satisfaction, market share, and profitability: Findings from Sweden. *J. Marketing* 58(3):53–66.

Arellano M, Bond S (1991) Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *Rev. Econom. Stud.* 58(2):277–297.

Bartash J (2012) Service sector growth accelerates in February. *Wall Street Journal MarketWatch* (March 5), http://articles.marketwatch.com/2012-03-05/economy/31123042_1_service-sector-ism-service-service-index.

Bechwati NN, Morrin M (2003) Outraged consumers: Getting even at the expense of getting a good deal. *J. Consumer Psych.* 13(4):440–453.

Bergen M (2012) Why is the service sector straggling? Because cities are. *Forbes* (April 27), http://www.forbes.com/sites/markbergen/2012/04/27/why-is-the-service-sector-straggling-because-cities-are.

Bijmolt THA, van Heerde HJ, Pieters RGM (2005) New empirical generalizations on the determinants of price elasticity. *J. Marketing Res.* 42(May):141–156.

Bougie R, Pieters R, Zeelenberg M (2003) Angry customers don't come back, they get back: The experience and behavioral implications of anger and dissatisfaction in services. *J. Acad. Marketing Sci.* 31(4):377–393.

Chhaochharia V, Korniotis GM, Kumar A (2011) Prozac for depressed states? Effect of mood on local economic recessions. University of Miami, Working paper, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1814083.

Consumer Reports (2012) CR survey: Econo Lodge and America's Best Value Inn are among lowest-rated hotels (August 10), http://pressroom.consumerreports.org/pressroom/2012/05/cr-survey-econo-lodge-and-americas-best-value-inn-are-among-lowest-rated-hotels.html.

CustomerGauge (2008) The reasons customers defect (March 5), http://customergauge.com/2008/03/the-reasons-customers-defect.

Davidow M (2003) Have you heard the word? The effect of word of mouth on perceived justice, satisfaction, and repurchase intentions following complaint handling. *J. Consumer Satisfaction, Dissatisfaction, Complaining Behav.* 16:67–80.

De Nardi M, French E, Benson D (2012) Consumption and the great recession. *Federal Reserve Bank of Chicago Econom. Perspect.* 36(1):1–16.

Dotzel T, Shankar V, Berry L (2013) Service innovativeness and firm value. *J. Marketing Res.* 50(2):259–276.

Drolet A, Luce MF, Simonson I (2009) When does real choice reveal preference? Moderators of heuristic versus goal-based choice. *J. Consumer Res.* 36(1):137–147.

Dunn LD, Dahl W (2012) Self threat and product failure: How internal attributions of blame impact consumer complaining behavior. *J. Marketing Res.* 49(5):670–681.

Dutt P, Padmanabhan V (2011) Crisis and consumption smoothing. *Marketing Sci.* 30(3):491–512.

Edmiston KE (2013) The low- and moderate-income population in recession and recovery: Results from a new survey. *Economic Rev.* 1(1):33–57.

Estelami H, Lehmann D, Holden AC (2001) Macro-economic determinants of consumer price knowledge: A meta-analysis of four decades of research. *Internat. J. Marketing Res.* 18(4):341–355.

Evangelidis I, Levav J (2013) Prominence versus dominance: How relationships between alternatives drive decision strategy and choice. *J. Consumer Res.* 50(6):753–756.

Gallup-Healthways Website (2012) Gallup-Healthways well-being index (April 1), http://www.well-beingindex.com.

Gordon BR, Goldfarb A, Li Y (2013) Does price elasticity vary with economic growth? A cross category analysis. *J. Marketing Res.* 50(1):4–23.

Green PE, Srinivasan V (1978) Conjoint analysis in consumer research: Issues and outlook. *J. Consumer Res.* 5(2):103–123.

Gruca TS, Rego LL (2005) Customer satisfaction, cash flow, and shareholder value. *J. Marketing* 69(3):115–130.

Hansen L (1982) Large sample properties of generalized method of moments estimators. *Econometrica* 50(3):1029–1054.

Hudson K (2009) Phoenix bears the brunt of hotel market's steep downturn. *Wall Street Journal* (August 5), http://online.wsj.com/article/SB124398327988479041.html.

Jarque C, Bera AK (1987) A test for normality of observations and regression residuals. *Internat. Statist. Rev.* 55(2):163–172.

Kamakura W, Du R (2012) How economic contractions and expansions affect expenditure patterns. *J. Consumer Res.* 39(2):229–247.

Kanell M (2013) For better of worse: Technology makes it easier to personalize prices. *Atlanta Journal-Constitution* (September 14), http://www.myajc.com/news/business/for-better-of-worse-technology-makes-it-easier-to-nZs72/?icmp=ajc_internallink_invitationbox_apr2013_ajcstub2.

Kassarjian HH (1977) Content analysis in consumer research. *J. Consumer Res.* 4(1):8–18.

Kushwaha T, Shankar V (2013) Are multichannel customers really more valuable? The moderating role of product category characteristics. *J. Marketing* 77(4):67–85.

Lam SY, Shankar V, Erramilli MK, Murthy B (2004) Customer value, satisfaction, loyalty, and switching costs: An illustration from a business-to-business service context. *J. Acad. Marketing Sci.* 32(3):293–311.

Lamey L, Deleersnyder B, Dekimpe MG, Steenkamp JEM (2007) How business cycles contribute to private-label success: Evidence from the United States and Europe. *J. Marketing* 71(1):1–15.

Loeb BS (1955) The use of engel's laws as a basis for predicting consumer expenditures. *J. Marketing* 20(1):20–27.

Ma Y, Ailawadi K, Gauri DK, Grewal D (2011) An empirical investigation of the impact of gasoline prices on grocery shopping behavior. *J. Marketing* 75(2):18–35.

Martin H (2012) Complaints against airlines climb despite record on-time record. *LA Times* (September 12), http://latimesblogs.latimes.com/money_co/2011/09/complaints-against-airlines-climb-despite-better-on-time-rates.html.

Maxham JG III, Netemeyer RG (2002) A longitudinal study of complaining customers' evaluations of multiple service failures and recovery efforts. *J. Marketing* 66(4):57–71.

McCollough MA, Berry LL, Yadav M (2000) An empirical investigation of customer satisfaction after service failure and recovery. *J. Service Res.* 3(2):121–137.

McFadden D (1986) A choice theory approach to market research. *Marketing Sci.* 5(4):275–298.

McGregor J, McConnon A, Kiley D (2009) Customer service in a shrinking economy. *Businessweek* (February 18), http://www.businessweek.com/stories/2009-02-18/customer-service-in-a-shrinking-economy.

Mendes E (2010) One million surveys reveal portrait of Americans' well-being (April 20), http://www.well-beingindex.com/findings.asp.

Moorman C, Wies S, Mizik N, Spencer FJ (2012) Firm innovation and ratchet effect among consumer packaged goods firms. *Marketing Sci.* 31(6):934–951.

Morgan NA, Rego LL (2006) The value of different customer satisfaction and loyalty metrics in predicting business performance. *Marketing Sci.* 25(5):426–439.

Neslin SA, Grewal D, Leghorn R, Shankar V, Teerling ML, Thomas JS, Verhoef PC (2006) Challenges and opportunities in multichannel management. *J. Service Res.* 9(2):95–112.

Nickell S (1981) Biases in dynamic models with fixed effects. *Econometrica* 49(6):1417–1426.

OECD Council (2005) Growth in services: Fostering employment, productivity and innovation (November 13), http://www.oecd.org/economy/34749412.pdf.

Oliver RL (1999) Whence consumer loyalty? *J. Marketing* 63(4):33–44.

Parker JR, Schrift RY (2011) Rejectable choice sets: How seemingly irrelevant no-choice options affect consumer decision processes. *J. Marketing Res.* 48(5):840–854.

Petersen JA, Kumar V (2009) Are product returns a necessary evil? Antecedents and consequences. *J. Marketing* 73(3):35–51.

Piketty T, Saez E (2013) Top incomes and the great recession: Recent evolutions and policy implications. *Economic Rev.* 61(3):456–478.

Rego LL, Morgan NA, Fornell C (2013) Reexamining the market share—Customer satisfaction relationship. *J. Marketing* 77(5):1–20.

Richins ML (1983) Negative word-of-mouth by dissatisfied customers: A pilot study. *J. Marketing* 47(1):68–78.

Roodman D (2009) How to do xtabond2: An introduction to difference and system GMM in stata. *Stata J.* 9(1):86–136.

Sawhney M, Wolcott RC, Arroniz I (2006) The twelve different ways for companies to innovate. *Sloan Management Rev.* 47(3):75–81.

Scaglione F (1988) Two-way communication: Tapping into gripes and profits. *Management Rev.* 77(9):51–53.

Smith AK, Bolton RN, Wagner J (1999) A model of customer satisfaction with service encounters involving failure and recovery. *J. Marketing Res.* 36(3):356–372.

Sun K, Keh HT, Lee AY (2012) The effect of attribute alignability on service evaluation: The moderating role of uncertainty. *J. Consumer Res.* 39(4):831–847.

Talukdar D, Lindsey C (2013) To buy or not to buy: Consumers' demand response patterns for healthy versus unhealthy food. *J. Marketing* 77(2):124–138.

Tellis GJ (1988) The price elasticity of selective demand: A meta-analysis of econometric models of scale. *J. Marketing Res.* 25(4):331–341.

van Doorn J, Verhoef PC (2008) Critical incidents and the impact of satisfaction on customer share. *J. Marketing* 72(4):123–142.

Venkatesan R, Kumar V (2004) A customer lifetime value framework for customer selection and resource allocation strategy. *J. Marketing* 68(4):106–125.

Venkatesan R, Kumar V, Bohling T (2007) Optimal customer relationship management using Bayesian decision theory: An application for customer selection. *J. Marketing Res.* 44(4):579–594.

Woodruff RB (1997) Customer value: The next source for competitive advantage. *J. Acad. Marketing Sci.* 25(2):139–153.

Yadav MS, Prabhu JC, Chandy RK (2007) Managing the future: CEO attention and innovation outcomes. *J. Marketing* 71(4):84–101.

Zeithaml VA (1988) Consumer perceptions of price, quality, and value: A means-end model and synthesis of evidence. *J. Marketing* 52(3):2–22.

Zeithaml VA, Berry LL, Parasuraman A (1996) The behavioral consequences of service quality. *J. Marketing* 60(2):31–46.

Zhou KZ, Yim CK, Tse DK (2005) The effects of strategic orientations on technology- and market-based breakthrough innovations. *J. Marketing* 69(2):42–60.