

Consumer Reactions to Drip Pricing

Shelle Santana – Harvard Business School
Steven Dallas – NYU Stern School of Business
Vicki G. Morwitz – NYU Stern School of Business

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Abstract

This research examines consumer choice and satisfaction in response to drip pricing—a pricing strategy whereby a firm advertises only part of a product’s price up-front and then reveals additional mandatory or optional fees/surcharges as the consumer proceeds through the buying process. Across five studies, the authors find that when optional surcharges are dripped (vs. revealed upfront) consumers make suboptimal purchase decisions. Specifically, when consumers are exposed to drip pricing, they select more expensive alternatives and, when given the opportunity to start the purchase process over, they tend to stick with their initial choice. We find this pattern of results even when total prices are provided, and even though consumers exposed to drip pricing are relatively dissatisfied with their selection. Furthermore, we find that consumers exposed to drip pricing tend to stick with their higher-priced, relatively unsatisfying selections for multiple reasons, including a belief that all firms charge similar additional fees/surcharges (study 3), self-justification (study 4), and inertia (study 5). We also find that the current regulations passed by United States policy makers vary in their effectiveness in helping consumers make better choices, but that potential new requirements under consideration might be more helpful.

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“They set their fares lower on initial ticket price, then kill you on baggage fees. \$55 to carry on, \$50 to check in on my LA-Chicago flight. That's each way! They don't serve a complimentary drink (that's extra), you have to pay extra to pick seats, etc. End result is they are not that much cheaper, if at all in many cases, than other airlines and they are the least comfortable airline in the US -- uncomfortable seats with little room. In other words, they are TERRIBLE! Choose another airline. Seriously.”

-Dominik, US Spirit Airlines flier (November 27, 2016). Overall rating: 1/10 stars

EDITOR'S COMMENT: This is why it's important to do a final tally and check other airlines before actually paying. All the fees are stated throughout the booking process so it's important to add them all up first. (airlineratings.com/passenger-reviews/137/spirit-airlines)

1. Introduction

The customer review (and editor response) above is real and exemplifies how consumers react to drip pricing, which the United States Federal Trade Commission (FTC 2015) defines as “a pricing technique in which firms advertise only part of a product’s price and reveal other charges later as the customer goes through the buying process. The additional charges can be mandatory charges, such as hotel resort fees, or fees for optional upgrades and add-ons.” Drip pricing is frequently used by firms in areas as diverse as the airline, rental car, hotel, and financial services industries, and it has become a major cause for concern for regulators throughout the world who worry that the practice may be harmful to consumers.¹ Various regulatory agencies have passed legislation and/or issued fines and warnings to companies who engage in drip pricing. For example, the Australian Competition and Consumer Commission fined the country’s two largest airlines for misleading customers with drip pricing (Palmer 2017), and the Canadian Competition Bureau (2017) took similar action against several retailers and rental car agencies (Evans 2016; The Canadian Press 2017). In the U.S., the FTC (2012) warned

¹ See U.S. Department of Transportation, Enhancing Airline Passenger Protections, Docket DOT-OST-2010-0140, April 25, 2011, <https://www.regulations.gov/document?D=DOT-OST-2010-0140-2051>; Office of Fair Trading’s report, Advertising Prices: <http://www.offt.gov.uk/OFTwork/markets-work/advertising-prices/>; Australian Competition and Consumer Act 2010

22 hotel operators that their use of drip pricing regarding mandatory resort fees might be deceptive, and urged them to review how they displayed prices to consumers to ensure that they were not violating any laws.

Regulators worry that drip pricing may impose two costs on consumers (Shelanski et al. 2012): (1) a monetary cost associated with making a product purchase that perhaps would not have been made if the true prices were known up front and (2) increased search costs for price comparisons across offerings (Sullivan 2017). However, despite the regulatory and consumer backlash to drip pricing, firms continue to engage in the practice because it is highly profitable. Industry data show that, in 2016, U.S. airlines earned \$41 billion in “ancillary fee” revenue above the base ticket prices (White 2015). Similarly, U.S. hotels earned over \$2.5 billion from fees and surcharges in 2015 (King 2016). Consistent with this, some economic models of drip pricing show that the practice leads to increased profits for firms (Ellison 2005).

Given the prevalence of drip pricing and its potential to harm consumers, research on how consumers respond to drip pricing is surprisingly limited. The little extant research has often used the terms partitioned pricing (Morwitz et al. 1998) and drip pricing interchangeably, though they differ in significant ways. In addition, prior research has primarily focused on the dripping of mandatory surcharges (Huck and Wallace 2010; Repetti et al. 2015; Robbert 2015; Robbert and Roth 2014; Shelanski et al. 2012; Sullivan 2017), while in practice it is quite common for firms to also drip optional surcharges. Also, while economic scholars have explored price obfuscation, transparency, and shrouding practices (Brown et al. 2010; Chetty et al. 2009; Chiles 2016; Ellison 2005; Ellison and Ellison 2009; Gabaix and Laibson 2006; Hossain and Morgan 2006; Seim et al. 2016, 2017; Zenger 2013), this body of research has largely focused on the impact of these strategies on the structure of the marketplace and firm

profitability, rather than focusing primarily on consumers' reactions to them.

Thus, our goal is to fill these gaps and to offer novel insights into how drip pricing affects consumer judgments and choices, particularly within the context of the current regulatory environment. Our analysis extends beyond the effect of drip pricing on consumer choice to also include consumer satisfaction with those choices. In addition, we consider the effect of drip pricing for optional (vs. mandatory) add-ons. Although current U.S. regulations around drip pricing only cover the disclosure of mandatory surcharges, the dripping of optional surcharges is also a common practice in the marketplace, and policy makers are currently debating whether the regulations should be expanded to cover such fees (Silk 2017). As a result, the current research has the potential to inform this important policy debate. Finally, we add to the literature by examining whether consumers who are exposed to drip pricing will change their decision when given the opportunity to do so. We posit and test several process explanations—based on theories in consumer psychology and explanations offered by the study participants themselves—for why consumers might stick with their initial selection (and reject the opportunity to change their selection) even if it is more expensive and less satisfying than other options.

Our experimental designs also allow us to test whether the current U.S. regulations aimed at drip pricing are likely to reduce financial and search costs for consumers, and whether more, fewer, or different interventions might be necessary. For instance, airlines are currently required to advertise base fares with mandatory fees included, although there is some push to remove these regulations (Silk 2017). Additionally, fees for optional add-ons are not covered by the legislation, but are being debated (Silk 2017). Because we examine the impact of drip pricing on consumers when optional add-ons are involved, this research can offer insight into whether

there is value in expanding the current regulations.

The rest of the paper is organized as follows. First, we provide a short summary of the current regulations and debates around drip pricing in the U.S. We then move onto a brief summary of related research before developing our predictions. We next describe the basic experimental design used in all of our studies and then present the findings from five experiments, including one where participants complete an incentive compatible task. Across these studies, we show that consumers exposed to drip pricing 1) are disproportionately more likely to select a higher-cost option, 2) are relatively dissatisfied with their choice, 3) but are resistant to changing their choice when given the opportunity to do so. We find evidence that misperceptions about differences between competitors' pricing, self-justification, and inertia help explain the low switching behavior. Taken together, these findings suggest that the existing U.S. regulations are needed, but may not be sufficient. Conversely, we do find evidence that new regulations that would require additional disclosures may lead consumers to choose less expensive options, and to be relatively more satisfied with their choices. We conclude with a broader discussion of our findings, their implications and limitations, and areas for future research.

1.1. Background

1.1.1. U.S. Regulations

In 2011, the U.S. Department of Transportation issued a revised "Passenger Bill of Rights" covering the airline industry, which included, among other things, two requirements related to drip pricing: 1) all government taxes and fees must be included in every advertised price and 2) airlines must allow reservations to be held at the quoted fare without payment or cancelled without penalty for at least 24 hours after the reservation is made (DOT 2011a). When

the changes were announced, the Secretary of Transportation stated that “airline passengers have the right to be treated fairly,” implying that drip pricing is unfair (DOT 2011b). Not surprisingly, regulators and airlines disagree on this point. Regulators consider it to be a deceptive pricing practice and harmful to consumers because it increases their financial and search costs. As such, the requirements around mandatory surcharges are presumably aimed at reducing deception and financial costs, while granting consumers the ability to hold a reservation for 24 hours or cancel a booking without penalty reduces their search costs. On the other hand, the airlines argue that since the total price is provided to consumers before any final purchase is made—and consumers are not obliged to make a purchase—the practice is neither deceptive nor harmful (Bender 2014).

In 2014, Congress proposed the Transparent Airfares Act of 2014 (Elliott 2014a), which would no longer require airlines to include mandatory taxes and fees in their advertised prices. Instead, they would be allowed to initially quote a lower base price that excludes mandatory fees, and then reveal the full price at the end of the booking process. In response, the U.S. Senate proposed the Real Transparency in Airfares Act, which would leave the current rules in place but increase the penalties for airlines that violate the pricing regulations (Elliott 2014b). Ultimately, neither bill was enacted, and the debate regarding regulations on drip pricing continues.

In January 2017, the Department of Transportation (DOT) proposed legislation to require airlines to disclose upfront any fees associated with carry-on and checked luggage. This was a modification of legislation proposed earlier that would also require the upfront disclosure of costs associated with reserving a seat. Under current law, airlines are only required to inform consumers that there may be additional costs and where they can go to find those costs. If the currently proposed legislation is enacted, airlines would no longer legally be able to drip optional surcharges associated with luggage later in the purchase process. However, since the Trump

administration is seeking to reduce regulations on business, there is some debate about whether this legislation will be enacted (Silk 2017).

1.1.2. Related Literature

Much of the findings from the literature on hidden fees (Grossman 1981; Milgrom 1981), after markets (Waldman 2012), obfuscation (Ellison and Ellison 2009), and shrouding (Gabaix and Laibson 2006) are useful in understanding some of the effects of drip pricing. This research has mainly focused on developing economic models of a market where one of these pricing strategies is used and then examining the subsequent effect on market structure, consumer demand, and competition. Models that assume that consumers have rational expectations about unadvertised prices conclude that as long as there are no costs associated with disclosing information about the prices for add-ons, consumers will not be harmed because they will assume high add-on prices, which will dampen demand (Grossman 1981; Milgrom 1981; Sullivan 2017). However, subsequent models showed that if some consumers do not have rational expectations (i.e., “myopes” or naïve consumers) and do not fully anticipate that there will later be add-on fees (Gabaix and Laibson 2006), or do not fully process add-on fees, they will underestimate total costs (Chetty et al. 2007; Farrell 2012) and can be harmed by paying higher prices than they otherwise would have (Sullivan 2017). However, there is little empirical work that has examined whether the predictions derived from these economic models actually manifest in the marketplace. One notable exception is Seim et al. (2017), which does provide empirical support for the notion that, when consumers are inattentive (which survey data suggests a sizeable segment of consumers are with respect to add-on fees), and the marketplace is competitive, firms have an incentive to set low base prices but high prices for add-ons.

Much of the presumed effects of drip pricing is informed by research on partitioned

pricing (Morwitz et al. 1998), which is a pricing practice whereby firms separate mandatory (vs. optional) surcharges from base prices. In most partitioned pricing research, information about base prices and surcharges are presented simultaneously (a key distinction from drip pricing). These papers largely show that when prices are partitioned (vs. not), consumers do not pay full attention to surcharges, they underestimate total costs (even when total cost information is provided), and are more likely to purchase (Chakravarti et al. 2002; Chetty et al. 2009; Greenleaf et al. 2016; Lee and Han 2002; Morwitz et al. 1998; Xia and Monroe 2004).

The few experimental studies specifically focused on the use of drip pricing have similarly used mandatory (vs. optional) surcharges and have found that, when compared to partitioned (i.e., separate but simultaneous) pricing, drip pricing (i.e., separate and sequential) results in lower purchase intentions. The results from these papers also indicated that drip pricing leads to more accurate total price estimation (although total prices are still underestimated), higher perceptions of price unfairness, and stronger feelings of deception (Robbert and Roth 2014; Robbert 2015). However, in other experimental work, Huck and Wallace (2010) found that dripping mandatory charges (vs. partitioned pricing) resulted in lower search and more purchasing. At this point, the drip pricing findings are mixed, so clearly more research is needed.

Finally, we recognize that some may consider optional add-ons to be a form of a la carte pricing or price customization, which may be valid strategies to employ in order to capture consumer heterogeneity in preferences for such add-ons (Shelanski et al. 2012). It is therefore important to note that our focus is not on how consumers react to the mere inclusion or exclusion of the optional surcharges from the base price. Rather, our focus is on the temporal aspect of the surcharge disclosure—that is, whether information about surcharges for optional add-ons is provided upfront or whether it is dripped during the purchase process.

1.1.3. Predictions

When a firm uses drip pricing, consumers become aware of the surcharges for the optional add-ons only after they have initially made a selection and begin to go through the purchasing process. Since consumers may not anticipate the optional surcharges (Chetty et al. 2007; Farrell 2012; Seim et al. 2017), we predict that, holding all else constant, consumers exposed to drip pricing will initially select the option with the lowest *base* cost since that is the only information that they have at that time (Greenleaf et al. 2016). In contrast, when drip pricing is not used and consumers are presented with information about optional surcharges upfront, they also use this information when making their initial selections. Therefore, when the surcharges are presented upfront, we instead predict that consumers will initially select the option with the lowest *total* cost (base + optional surcharges), again holding all else equal. If the option with the lowest total cost is different from the option with the lowest base cost, as is the case in all of our studies, we predict that consumers exposed to drip pricing will be significantly more likely to initially select the option with the lower *base* cost but higher *total* cost than consumers exposed to non-dripped pricing (who will primarily select the higher base/lower total cost option).

Firms would likely argue that these initial choices are inconsequential, since all costs are eventually revealed and consumers always have the opportunity to abandon their initial selection and start over. As such, consumers' *ultimate* (vs. initial) choices are what matter. We make a new contribution to the drip pricing literature by examining this very question. That is, what happens when consumers are given the opportunity to abandon an initial decision and re-start their search once they learn that their selection was ultimately more expensive than they initially expected? We posit that, in general, consumers exposed to drip pricing will be resistant to

changing their initial selections and, as a result, these initial selections will prove to be sticky; and we explore a number of reasons why this might occur.

First, consumers exposed to drip pricing may believe that all firms charge similar optional surcharges. Thus, consumers may assume that there is no point in changing their selection—even if they are frustrated by the optional surcharges—because the other options are likely to have similar surcharges (Fletcher 2012). Thus, they may assume that the option with the lower base cost, even with the optional surcharges included, is still likely to be the option with the lowest total cost. Second, consumers may stick with their initial choices due to self-justification (Aronson 1976; Festinger 1957), especially in the face of information that they made a sub-optimal choice (Staw 1976; Staw and Fox 1977; Staw and Ross 1978). Because of this, consumers exposed to drip pricing may convince themselves that they made a good choice, even when later provided with information that suggests the opposite. Finally, consumers may stick with their initial choices because of inertia, which is consumers' general tendencies to stick with defaults (the initial choice is likely to be viewed as a default; Dinner et al. 2011). Since we believe that all of these processes are plausible and may jointly operate, we independently test their possible roles in explaining why consumers exposed to drip pricing might stick with an expensive option even when they are given the opportunity to restart their search.

Because we predict that consumers' initial selections will generally be sticky, and that consumers exposed to drip pricing will be significantly more likely to ultimately select the lower base (and higher total cost) option, we also predict that they are likely to be relatively dissatisfied with their selection (Zeelenberg et al. 2000), and significantly less satisfied than consumers who are presented with the optional surcharges upfront (i.e., non-drip pricing).

We test these predictions in five studies, which are detailed below. Before we discuss the

studies, however, we first begin with an overview of our experimental paradigm, since our experimental design is similar across studies. Note that because we are interested in the potential efficacy of current and proposed regulations, each manipulation was designed to reflect industry practice and/or (proposed) federal regulations. For example, to test whether disclosing the total price is sufficient to alleviate the deception concerns associated with drip pricing, we test whether revealing the total price reduces consumers' tendency to mistakenly purchase a more expensive option. In addition, to examine whether policies like the 24 hour airline hold/cancellation window requirement reduce search and financial costs, we study whether making salient to consumers that they can restart their search reduces their tendency to purchase a more expensive option. Finally, because policy makers are currently debating whether firms should have to be more transparent about optional surcharges (e.g., Quirk 2016), in all of our studies we test whether providing information regarding optional surcharges upfront (vs. dripping such information) aids in reducing consumers' tendency to select a more expensive option.

2. Overview of the Experimental Paradigm

Each study had three parts. In part 1, participants read a purchase scenario and made a choice between two options (e.g., Airline A and Airline B). In part 2, they selected any optional add-ons they wanted to add onto their purchase (e.g., to add a carry-on bag to their airline purchase). Participants were next given the opportunity to either complete the transaction or to start over. If they decided to start over, they returned to the initial choice page and went through the entire purchase process again from the beginning. Once participants completed the transaction, they moved on to part 3, where they responded to a series of questions designed to measure their satisfaction with their choice. This design allowed us to examine the effect of drip (vs. non-drip) pricing on participants' reactions in all three parts of each study—their choices,

decisions regarding whether to start over, and satisfaction regarding their choices.

2.1. Part 1: Choice

In studies 1, 4, and 5, the purchase scenario involved booking a flight for a beach vacation with friends. In studies 2 and 3, it involved selecting a hotel for a local stay-cation. Participants were presented with information about the base price (which included mandatory taxes and fees) for two different offerings with one base price greater than the other (e.g., in study 1, the base prices were \$239 for one airline and \$194 for the other). In all but one study, participants were informed that additional fees for optional add-ons may apply for the option with the lower base price (all of these same add-ons were included in the base price of the higher base price option). Based on random assignment, these additional fees were either presented on the first page and beneath the base prices (non-drip condition) or were dripped (drip condition) over several subsequent pages. Participants next selected one of these options. Importantly, participants in the non-drip condition saw all the surcharges prior to making their initial choice between the options. In contrast, in the drip condition, participants only saw these additional surcharges after making their initial selection.

2.2. Part 2: Optional Add-Ons and Opportunity to Start Over

Participants next decided whether to add optional add-ons to their purchase. The different optional add-ons were presented—along with their prices—one at a time, each on a different screen. For example, in study 1, participants were first asked whether they wanted to add a carry-on bag to their purchase (\$28 for lower base price option, \$0 for higher base price option); next they were asked whether they wanted to add a checked bag (\$30 for lower base price option, \$0 for higher base price option); and, finally, they were asked if they wanted to reserve a specific seat on the plane (\$18 for lower base price option, \$0 for higher base price option). In each study

(except for study 2, which involved an incentive compatible choice), we informed participants, via the scenario, which optional add-ons to select, in order to hold the purchase decisions constant across conditions. Participants were reminded of this information when it came time to select the optional add-ons, and were told to change their selection if they made an incorrect selection. We designed the optional add-ons such that—when they were added to the base prices—the lower base price option was ultimately more expensive than the option with the higher base price. Thus, for expository purposes, we refer to the two options as the lower base/higher total option and the higher base/lower total option, respectively. See Table 1 for the base prices, prices of the optional add-ons, and total prices for the two alternatives in all of the studies.

Table 1. Pricing Structure for Lower Base/Higher Total Option and Higher Base/Lower Total Option Across Studies

Studies 1 and 4		Base Fare	Carry-On Bag (Each Way)*	Checked Bag (Each Way)	Reserved Seat (Each Way)*	Total Price	
	Lower Base / Higher Total	\$194	\$28	\$30	\$18	\$286	
	Higher Base / Lower Total	\$239	\$0	\$0	\$0	\$239	
Study 2		Base Fare	Wi-Fi	Breakfast Buffet	Self-Parking	Gym, Pool, Spa Access	Total Price
	Lower Base / Higher Total	\$227	\$13	\$30	\$38	\$25	Varied
	Higher Base / Lower Total	\$239	\$0	\$0	\$0	\$0	\$239
Study 3		Base Fare	Wi-Fi*	Self-Parking*	Gym, Pool, Spa Access*	Total Price	
	Lower Base / Higher Total	\$185	\$15	\$20	\$25	\$245	
	Higher Base / Lower Total	\$225	\$0	\$0	\$0	\$225	
Study 5		Base Fare	Carry-On Bag*	Checked Bag	Reserved Seat*	Total Price	
	Lower Base / Higher Total	\$98	\$28	\$30	\$18	\$144	
	Higher Base / Lower Total	\$121	\$0	\$0	\$0	\$121	

*Indicates that the scenario instructed participants to select that optional add-on.

After adding the optional add-ons, in all but one study (study 1, where this varied across

conditions), all participants were presented with the total cost of the selected option. Participants were then given the opportunity to complete the transaction or start over. Those who elected to start over returned to the initial choice page and went through the entire purchase process again.

2.3. Part 3: Satisfaction with Choice

Last, participants responded to questions designed to assess their satisfaction with their chosen option. Specifically, they were asked the following questions on seven-point scales with 1 = Extremely unlikely and 7 = Extremely likely (the wording below is for the airline scenarios; the questions were modified as needed for the hotel scenarios): “How likely are you to fly this airline again?” “How likely are you to recommend this airline to your friends and family?” “How likely are you to tell others about your purchase experience with this airline?” and “If you were presented with the same choice of airlines again, how likely would you be to switch your choice?” In addition, participants (in studies 2 and 3) were asked their level of agreement (1 = Strongly disagree, 7 = Strongly agree) with the following statements: “I feel good about the airline that I chose,” “I regret choosing this airline,” and “The airline’s pricing is deceptive.” Participants then responded to demographic questions, such as gender and age.

Note that as we present the details for each study in the sections that follow, we focus the procedure section on the aspects of that study that depart from this basic paradigm. The detailed materials for each study—including the full scenarios—are available in the web appendix.

3. Study 1

Study 1 is designed to test whether consumers are more likely to select higher-priced alternatives when optional surcharges are dripped (vs. not dripped) and when total costs are absent (vs. provided). We also measure choice satisfaction and examine whether consumers who initially choose a higher-priced option change their choice when they are given the opportunity

to do so. Finally, for those who do not elect to start over, we explore why they made that choice.

3.1. Methods

3.1.1. Participants and Design. Four hundred and one Amazon Mechanical Turk (mTurk) participants (43.9% female, $M_{Age} = 34.18$, $SD_{Age} = 10.02$) completed this study for \$1.00. Participants were randomly assigned to one of four conditions in a 2 (optional surcharges: dripped, non-dripped) x 2 (total cost: absent, present) between-subjects design.

3.1.2. Procedure. Participants read a scenario that told them that they decided to take a weekend vacation, that they needed to book a round trip airline ticket to the destination, and that they decided to bring a carry-on bag and reserve a seat in advance. We specified these options to ensure that all subsequent airline choices across conditions were comparable.

Participants next saw two airline options: one with a higher (\$239) and one with a lower (\$194) base fare, along with a notation that additional baggage and seat surcharges may apply for both airline options. The higher base option did not charge extra fees for carry-on bags or for seat selection, while the lower base option did. Once the optional surcharges were added, the lower base fare airline was ultimately more expensive (\$286) than the higher base fare airline (\$239).

After making their initial airline choice, participants selected the optional add-ons specified in the scenario (i.e., a carry-on bag and a reserved seat for each flight leg), and were presented with the total cost of the chosen airline or not, depending on condition. Participants were then given the opportunity to either start over or to complete their purchase. Once they completed their purchase they then responded to the first four questions listed in Section 2.3 as part of a “customer satisfaction” survey. Finally, participants in the drip condition who selected the lower base/higher total airline and decided to complete their purchase (rather than start over) were asked the extent to which they agreed with a series of statements that were intended to

probe why they decided to not start over, such as: “Starting over would take too much time,” “I think I got a good deal on this airline ticket,” and “The extra fees that airlines charge are pretty much the same for all airlines” (1 = Strongly disagree and 7 = Strongly agree). The complete set of questions is available in the web appendix.

3.2. Results and Discussion

For this first study, we present the full details for all of the analyses conducted. Because similar analyses were conducted for the subsequent studies, the results were consistent across studies, and to minimize redundancy, the results sections for the subsequent studies contain less detail. However, Table 2 includes full details for all of the studies. Also, note that, for all binary logistic regressions, the coding used was 0 = non-dripped condition and 1 = dripped condition.

3.2.1. Airline Choice. A binary logistic regression revealed a significant effect of surcharge presentation on initial choice ($B = 4.21$, $SE = .35$, $Wald = 146.60$, $p < .001$). Consistent with our predictions, participants in the dripped condition (94.0%) were significantly more likely to initially select the lower base/higher total airline than were those in the non-dripped condition (18.9%). Furthermore, very few participants (only 10.0%) decided to start over when given that opportunity. To examine whether surcharge presentation or total cost affected the decision to start over, we conducted a hierarchical binary logistic regression on the propensity to start over with surcharge presentation and total cost (0 = absent, 1 = present) entered in the first step, and their interaction entered in the second step. The results revealed only a main effect of total cost ($B = 1.20$, $SE = .60$, $Wald = 4.03$, $p = .045$), such that 13.4% of participants started over when the total cost was present, whereas only 6.5% started over when the total cost was absent.

Next, we examined participants’ ultimate airline choices. After factoring in those who decided to start over and change their airline selection, we ran the previous binary logistic

regression procedure, but with final airline choice as the dependent variable. The results revealed only a significant effect of surcharge presentation ($B = 3.92$, $SE = .43$, $Wald = 82.91$, $p < .001$). Even after having the opportunity to switch their airline choice, a significantly larger percent of participants in the dripped condition ultimately chose the lower base/higher total cost airline (82.1%) than in the non-dripped condition (17.9%). No other effects were significant ($ps > .200$).

3.2.2. Downstream Consequences—Overall Satisfaction. We conducted an exploratory factor analysis (with varimax rotation) on the four satisfaction measures. Since all four items loaded onto a single factor (Eigenvalue = 2.53, 63.1% of the variance explained), we averaged them to create a single measure of participants' satisfaction with their choice ($\alpha = .74$).

We conducted an ANOVA of surcharge presentation, total, and their interaction on this satisfaction variable. The results revealed a significant effect of surcharge presentation ($F(1, 398) = 65.52$, $p < .001$). Participants in the non-dripped condition ($M = 5.52$, $SD = 1.08$) were significantly more satisfied with their final airline choice than those in the dripped condition ($M = 4.58$, $SD = 1.22$). No other effects were significant ($ps > .590$).

We next examined whether the effect of surcharge presentation (drip vs. non-drip) on choice satisfaction was mediated by ultimate airline choice. This mediation analysis (Iacobucci 2012) revealed a significant indirect effect of surcharge presentation on choice satisfaction through ultimate airline choice ($Z_{Mediation} = -5.45$, $p < .001$). Thus, whether the optional surcharges are dripped or not has an effect on participants' ultimate airline choice which, in turn, has an effect on their level of satisfaction with their choice. Indeed, participants who ultimately selected the lower base/higher total cost airline reported being significantly less satisfied with their choice ($M = 4.45$, $SD = 1.06$) than those who ultimately selected the higher base/lower total airline ($M = 5.59$, $SD = 1.06$; $t(400) = 10.26$, $p < .001$).

3.2.3. Reasons for Not Switching. Last, we probed why participants exposed to drip pricing who initially selected the lower base/higher total airline decided to stick with their choice (rather than start over) even though their selection was relatively expensive and they were relatively dissatisfied with it. Of the six potential reasons, these participants most strongly agreed that starting over would take too much time ($M = 5.18$, $SD = 1.76$), that the extra fees that airlines charge are similar across all airlines ($M = 4.61$, $SD = 1.48$), and that the price of the ticket they selected (i.e., for the lower base/higher total airline) was satisfactory ($M = 4.60$, $SD = 1.57$).

3.2.4. Discussion. Study 1 provides support for our predictions. When optional surcharges were dripped, almost all participants initially selected the lower base/higher total cost option. Importantly, these initial choices proved to be sticky. After being exposed to the optional surcharges and given the opportunity to start over, few elected to do so. Moreover, providing participants with the total cost of their flight (base fare plus optional surcharges) at the point of purchase (at which time they could start over or complete their purchase) did not seem to help most participants in the drip pricing condition to avoid selecting the more expensive option.

In addition, dripping optional surcharges appears to have important negative downstream consequences. Specifically, participants who selected the lower base/higher total airline—who were disproportionately from the dripped surcharges condition—indicated that they were significantly less satisfied with their airline choice. Thus, it appears that dripping optional surcharges may not only harm consumers through increased financial and search costs, but it may also have serious negative consequences for firms because it leads to unhappy consumers.

Moreover, we found that participants exposed to drip pricing who initially selected the lower base/higher total cost airline and decided to complete the transaction rather than start over made this decision primarily because they believed that the extra fees that airlines charge are

similar across airlines, that the final price of the lower base/higher total airline was satisfactory, and that it would take too long to change their selection. We experimentally test the potential role of these beliefs in explaining the stickiness of consumers' initial choices in the face of drip pricing in subsequent studies (studies 3-5).

Although study 1 provided these insights, it also had several shortcomings that need to be addressed. First, the study involved a hypothetical scenario. It is therefore possible that participants decided to not start over—even though they were dissatisfied with their choice—because they did not think it was worth their time given the hypothetical nature of the task. Second, the stimuli indicated that additional surcharges could apply for both the lower base fare and the higher base fare options. Thus, participants in the dripped condition who selected the lower base/higher total option may have decided to not start over because they assumed that similar surcharges would apply for the other option as well. Third, this study forced participants to select specific optional add-ons. Although we did this to hold choices and prices for each choice option constant across participants, it is possible that in real consumption contexts, some consumers would have avoided the optional add-ons to save money. Indeed, Gabaix and Laibson (2006) argue that sophisticated consumers are able to find ways around optional surcharges, and that the lower base fare option can generally be less expensive for such individuals. Finally, the base price difference between the two choices was relatively large, which could have affected participants' choices. The next study was designed to address these limitations.

4. Study 2

The main goal of study 2 is to replicate study 1's findings in a different domain (hotels) using a choice paradigm that is both incentive compatible and that allows participants to freely decide which optional add-ons to select.

4.1. Methods

4.1.1. Participants and design. The study was completed by 93 members of a subject pool at a large business school in the Northeast (40.4% female, $M_{\text{Age}} = 34.24$, $SD_{\text{Age}} = 15.10$). It was one of several unrelated studies in an hour-long session. Participants were paid \$20 for completing the entire session. Participants were randomly assigned to either the drip or non-drip condition.

4.1.2. Procedure. All study participants were informed that they would be asked to make a choice, and that one randomly selected participant would actually receive his/her choice.

Participants then read that they had decided to take a stay-cation in their local city, and that they needed to book a hotel room. They were told that the budget for the stay-cation was \$350, and that any money not spent on the hotel could be used for food and other activities.

Participants were then presented with the two hotel options (which were actually two different descriptions of the same hotel), and were told that the room rate (including all taxes and mandatory fees) for one hotel was \$239 versus \$227 for the other. They were also informed that additional fees for optional add-ons may apply only for the hotel with the lower room rate.

The prices of the optional add-ons were based on the actual prices for these amenities at the hotel, and were designed such that, if at least one was selected, the hotel with the lower room rate would ultimately be more expensive than the one with the higher room rate. A pre-test with a separate sample of 201 participants from the same population revealed that 99.0% of participants selected at least one of these optional add-ons, and that 94.7% of those who ultimately selected the lower room rate option selected at least one optional add-on (making it more expensive than the alternative).

Before making their hotel choice, participants were once again reminded that their choice was consequential. They were told that one randomly selected participant would receive a gift

card for his/her hotel choice that could be used on a date convenient to him/her. They were also told that the selected participant would receive a Visa gift card for the amount of money remaining in his/her budget (\$350) not spent on the hotel, which could be used for other expenses during the stay-cation. Thus, the selected participant would receive \$350 in total value, regardless of their choice, with more or less being spent on the hotel, depending on their choice.

After making their hotel choice, participants selected any optional add-ons that they wanted (if the participant selected the higher base/lower total hotel, there were no additional costs for these options). After selecting the optional add-ons, participants were presented with the total cost of the hotel room (i.e., room rate plus any surcharges for optional add-ons). Participants were then given the opportunity to either start over or complete their purchase.

Once participants completed their transaction, they were directed to a “customer satisfaction survey” to measure their satisfaction with their choice. This survey contained the same questions as were used in study 1, as well as the other questions presented in Section 2.3.

4.2. Results and Discussion

4.2.1. Hotel Choice. As predicted, participants in the dripped condition (31.9%) were significantly more likely to initially select the hotel with the lower base cost than were participants in the non-dripped condition (6.7%; $p = .005$).

None of the participants decided to start their transaction over when given the opportunity to do so. Thus, surcharge presentation (non-dripped vs. dripped) did not affect the decision to start over or not, and the ultimate hotel choices were identical to the initial choices.

Unlike in study 1, where the add-ons were pre-determined for participants, participants in this study were free to forego the hotel’s amenities. Thus, a purchasing mistake was only made if a participant selected the lower base option *and* added at least one optional amenity. Notably,

only two (or 2.2%) participants did not select any optional add-ons—both were in the dripped condition and selected the lower base cost hotel. We next excluded those two participants and conducted a binary logistic regression on the remaining participants, for all of whom the lower base cost hotel was ultimately more expensive than the higher base cost hotel. This analysis yielded similar results ($B = 1.76$, $SE = .68$, $Wald = 6.68$, $p = .010$), with a larger percent of participants in the dripped condition (28.9%) selecting the lower base/higher total cost hotel than in the non-dripped condition (6.7%). Moreover, participants in the dripped condition who chose the more expensive option (i.e., those who selected the lower base hotel and selected at least one optional add-on) spent, on average, \$21.15 more than they would have if they had selected the higher base/lower total cost hotel.

4.2.2. Downstream Consequences—Overall Satisfaction. An exploratory factor analysis (with varimax rotation) found that the three new satisfaction items and the satisfaction index used in study 1 all loaded onto a single factor (Eigenvalue = 2.38, 59.4% of the variance explained). We therefore averaged all seven of these items to create a measure of participants' overall satisfaction with their hotel choice ($\alpha = .74$).

An independent samples t -test revealed that the effect of surcharge presentation on overall satisfaction was not significant ($M_{\text{Drip}} = 5.73$, $SD = .99$, $M_{\text{Non-drip}} = 5.84$, $SD = .92$; $t(91) = .58$, $p = .563$). However, we also examined whether there was a significant indirect effect of surcharge presentation on overall satisfaction through ultimate hotel choice. This mediation analysis (Iacobucci 2012) revealed that there was a significant effect of surcharge presentation on choice satisfaction through hotel choice ($Z_{\text{Mediation}} = -2.21$, $p = .027$). Thus, the way in which the optional surcharges were presented (drip vs. non-drip) influenced the hotel that participants chose, which, in turn, influenced their satisfaction with their choice. Indeed, participants who

selected the lower base/higher total cost hotel were significantly less satisfied with their choice ($M = 5.06$, $SD = 1.03$) than those who selected the higher base/lower total cost hotel ($M = 5.96$, $SD = .86$; $t(90) = 3.84$, $p < .001$).

4.2.3. Discussion. Study 2 extends the results of study 1 in several important ways. First, using a different context, an incentive compatible choice, a smaller base price difference, and giving participants the freedom to freely select whichever optional extras they wanted, we largely replicated the findings of study 1. We again found that drip pricing increased the likelihood that participants paid more than necessary and that participants were resistant to change their initial choices (i.e., search less) when they were given the opportunity to do so. In fact, even though it was a consequential choice, in this case no participants changed their initial choices, even those who selected the lower base/higher total cost hotel and who were relatively dissatisfied with it.

The results from studies 1 and 2 shed light on the effects of drip pricing on consumers and the potential efficacy of interventions designed to help them. For example, making it salient to participants that they can start over is conceptually similar to current regulations that allow consumers to cancel an airline ticket within 24 hours of purchasing it. However, these results suggest that consumers rarely take advantage of such policies, tending instead to stick with their initial choice, even though they admit that they are relatively dissatisfied with that choice. In addition, airlines argue that because they provide the total cost to consumers before any final purchase decisions are made, drip pricing is not deceptive and does not harm consumers. However, study 1 showed that providing the total cost to consumers before the final purchase had no effect on ultimate choice. Taken together, these results suggest that current regulations against drip pricing are helpful, but may not fully mitigate the negative effects of the practice.

It is clear that the opportunity to undo an unsatisfactory choice did not help consumers

exposed to drip pricing overcome their initial choice mistake. Thus, the next studies are designed to examine why consumers rarely start over in the face of dripped optional surcharges. The self-reports of participants in study 1 are consistent with our theorizing that the effects we observe may be multiply determined. That is, consumers may not start over due to a belief that surcharges are similar across providers, self-justification (as participants in study 1 indicated that they were satisfied with the final price paid while their satisfaction results belied this statement), and inertia (as participants indicated it would take too much time to start over and switch). We experimentally test these process explanations in turn, in studies 3, 4, and 5, respectively.

5. Study 3

5.1. Methods

5.1.1. Participants and Design. Four hundred and two mTurk participants (51.2% female, $M_{Age} = 37.76$, $SD_{Age} = 12.28$) completed this study for \$1.00. Participants were randomly assigned to one of four conditions in a 2 (optional surcharges: dripped, non-dripped) x 2 (information: similar surcharges, different surcharges) between-subjects design.

5.1.2. Procedure. Participants read an “excerpt” from a fictitious news article in which we manipulated the likelihood that other providers charge similar fees. In the similar (different) surcharges condition, the news article stated that if consumers encounter a fee from one airline service provider, they should (should not) assume that all airlines charge similar fees. After reading this excerpt, participants completed a neutral filler task.

Participants then completed the focal choice task in which they had to choose between two hotels—a lower base/higher total option and a higher base/lower total option. The former charged extra for optional add-ons, whereas the latter did not. As in study 1, participants were told which add-ons to select. The pricing schemes for the hotels are presented in Table 1.

After making their hotel choice, moving through the purchasing process, deciding whether to start over or not, and completing the customer satisfaction survey ($\alpha = .87$), participants indicated their level of agreement with two statements that served as manipulation checks: “The extra fees that hotels charge are pretty much the same for all hotels” (1 = Strongly disagree, 4 = Neither agree nor disagree, 7 = Strongly agree) and “The additional fees that companies charge are pretty much the same for all companies within an industry” (-3 = Strongly disagree, +3 = Strongly agree). Because participants’ responses to these two items were highly correlated, we averaged them to create a composite manipulation check variable ($r = .66$).

5.2. Results and Discussion

5.2.1. Hotel Choice. The results of a binary logistic regression on initial hotel choice revealed a significant effect of surcharge presentation ($B = 2.49$, $SE = .40$, $Wald = 38.04$, $p < .001$) and a marginally significant effect of information (0 = similar surcharges, 1 = different surcharges) ($B = -1.12$, $SE = .62$, $Wald = 3.26$, $p = .071$). These main effects were qualified by a marginally significant interaction ($B = 1.24$, $SE = .68$, $Wald = 3.32$, $p = .069$), though the impact of surcharge presentation was similar in both information conditions. Specifically, in the similar surcharges information condition, a larger percent of participants in the dripped condition initially selected the lower base/higher total cost hotel (57.1%) than did those in the non-dripped condition (10.0%; $p < .001$). Similarly, in the different surcharges information condition, a larger percent of participants in the dripped condition initially selected the lower base/higher total cost hotel (60.2%) than did those in the non-dripped condition (3.5%; $p < .001$).

Next, we investigated participants’ propensity to start over. Overall, across conditions, very few participants decided to start over (10.7%). A binary logistic regression of surcharge presentation and information and their interaction on starting over (0 = did not start over, 1 =

started over) revealed a significant effect of surcharge presentation ($B = 2.04$, $SE = .63$, $Wald = 10.34$, $p = .001$) with more participants in the dripped condition starting over (19.7%) than in the non-dripped condition (2.0%). This effect was mediated by the hotel that was initially selected ($Z_{Mediation} = 3.94$, $p < .001$). Indeed, 32.6% of participants who initially selected the lower base/higher total cost hotel started over, whereas only .4% of participants who initially selected the higher base/lower total cost hotel did the same. No other effects were significant ($ps > .240$).

Looking at final choices (i.e., including those who switched from their initial choice), we found that a larger percent of participants in the dripped condition selected the lower base/higher total cost hotel (40.4%) than in the non-dripped condition (4.9%; $p < .001$). No other effects were significant ($ps > .180$). Thus, explicitly informing consumers that the optional surcharges that firms charge can vary across firms was not enough to reduce choice of the lower base/higher total cost hotel among those exposed to drip pricing.

5.2.3. Ultimate Hotel Choice Mediated by Beliefs About Hotel Surcharges. Although there was no effect of the information manipulation on consumers' choices, an ANOVA of surcharge presentation, information, and their interaction on the manipulation check variable revealed a significant main effect of information ($F(1, 396) = 17.15$, $p < .001$), such that participants in the similar surcharges condition ($M = 3.56$, $SD = 1.56$) were significantly more likely to agree that the surcharges that firms charge are similar across firms than participants in the different surcharges condition ($M = 2.93$, $SD = 1.36$). Thus, there is evidence that the manipulation was successful. Interestingly, though, although the interaction was not significant ($p = .445$), there was also a significant main effect of surcharge presentation ($F(1, 396) = 5.18$, $p = .023$) on beliefs. Participants exposed to drip pricing ($M = 3.43$, $SD = 1.58$) were significantly more likely to believe that firms charge similar optional surcharges than those exposed to non-dripped

surcharges ($M = 3.05$, $SD = 1.38$). In addition, a subsequent independent samples t -test found that participants who ultimately selected the lower base/higher total cost hotel ($M = 4.02$, $SD = 1.49$) were significantly more likely to hold this belief than those who ultimately selected the higher base/lower total cost hotel ($M = 3.01$, $SD = 1.42$; $t(398) = 5.87$, $p < .001$). Thus, we decided to examine whether this belief regarding whether firms charge similar additional surcharges could help explain participants' hotel choices. Using the PROCESS Macro for SPSS (Model 4; Hayes 2013) and a bootstrap sample $n = 5000$, we found that the indirect effect of surcharge presentation on ultimate hotel choice through consumers' beliefs regarding additional surcharges was significant ($B = .17$, $SE = .08$, $CI(95\%) = [.04, .34]$), as evidenced by the 95% confidence interval excluding 0 (Hayes and Preacher 2014). Thus, beliefs about surcharges do seem to help explain consumers' choices. It is not clear, though, why our manipulation was not sufficient to change choices as it did change beliefs.

5.2.4. Downstream Consequences—Overall Satisfaction. Participants in the non-dripped condition were significantly more satisfied with their choice ($M = 5.88$) than those in the dripped condition ($M = 5.28$; $p < .001$). No other effects were significant ($ps > .730$). A mediation analysis (Iacobucci 2012) revealed that the effect of surcharge presentation on overall satisfaction was mediated by ultimate hotel choice ($Z_{Mediation} = -6.13$, $p < .001$). Indeed, participants who ultimately selected the lower base/higher total cost hotel were significantly less satisfied with their choice ($M = 4.39$, $SD = 1.42$) than those who ultimately selected the higher base/lower total cost hotel ($M = 5.93$, $SD = .82$; $t(397) = 12.97$, $p < .001$).

5.2.5. Discussion. Study 3 replicates and extends our previous findings. Once again, we find that drip pricing leads participants to choose a more expensive and relatively unsatisfactory option. In addition, we find that this choice is difficult to change. Indeed, explicitly informing consumers

that the additional fees that firms charge vary within an industry had no effect on the hotel that participants ultimately selected. However, we did find that participants in the drip condition were more likely to believe that all firms assess the same surcharges than those in the non-drip condition, and that the effect of surcharge presentation on ultimate hotel choice was mediated by those beliefs. Thus, one reason consumers exposed to drip pricing are more likely to ultimately select the lower base/higher total option may be because they believe all firms have similar surcharges. Accordingly, they may reason that there is no benefit to starting over and changing their selection since the other alternative likely assesses surcharges of a similar magnitude. It is worth noting that this belief appears to persist even though we explicitly indicate that only the lower base option may have additional surcharges (in all studies except for study 1), and therefore may be related to a self-justification account, an account we test in the next study.

6. Study 4

The goal of study 4 is to test whether self-justification helps explain the stickiness of consumers' initial choices in the presence of drip pricing. Prior research has shown that people are more likely to persist with an initial sub-optimal decision if they made that decision themselves but not if others made the initial decision (Staw 1976; Staw and Fox 1977; Staw and Ross 1978). To test the possible role of self-justification in our drip pricing context, one group of participants completed the standard choice and optional add-on selection process used in our previous studies, while a second group observed another consumer going through that same process. We reasoned that if self-justification was operating, participants exposed to drip pricing who select the more expensive, relatively unsatisfactory alternative for themselves would rate this decision more positively than those exposed to the same choice as an observer, since these participants should feel little need to justify the choice.

6.1. Methods

6.1.1. Participants and design. Four hundred and two mTurk participants (49.5% female, $M_{\text{Age}} = 35.73$, $SD_{\text{Age}} = 11.53$) completed this study for \$1.00. Participants were randomly assigned to one of four conditions in a 2 (optional surcharges: non-dripped, dripped) x 2 (perspective: self, other) between-subjects design.

5.1.2. Procedure. We used the same airline scenario as in study 1 with two modifications: participants were informed that only the lower base/higher total cost airline may have additional fees and participants were not given the option to start over.

Participants in the self-perspective condition completed the standard airline choice and optional add-ons selection procedure. Participants in the other-perspective condition, on the other hand, were presented with the same scenario, but were told that they would observe the choices of another person named “Alex.” On each subsequent page, they were presented with the screen/choice that Alex saw and then they were told the decision that Alex made (e.g., Alex chose the lower base/higher total cost option). We designed Alex’s choices to reflect the modal choices we observed in study 1 for that condition (i.e., in the dripped condition, Alex selected the lower base/higher total airline; in the non-dripped condition, Alex selected the higher base/lower total airline). This process was repeated for selecting optional add-ons.

Next, rather than being given the opportunity to start over, participants instead responded to a series of questions—similar to the satisfaction questions used in prior studies—designed to assess their level of satisfaction with their choice or Alex’s choice ($\alpha = .97$). See the web appendix for the specific items.

6.2. Results and Discussion

6.2.1. Airline Choice. Replicating our previous studies, among participants in the self-

perspective condition, those in the dripped condition were more likely to select the lower base/higher total cost airline (66.4%) than those in the non-dripped condition (16.8%; $p < .001$).

5.2.2. Overall Satisfaction Regarding Choice. An ANOVA of optional surcharge, perspective, and their interaction was conducted on overall satisfaction regarding the choice that either the participant made or Alex made. Because in the other-perspective condition Alex only selected the higher base/lower total airline in the non-dripped condition and the lower base/higher total airline in the dripped condition, to make the responses across the perspective conditions comparable, in the self-perspective condition, for this analysis, we excluded those participants in the non-dripped condition who selected the lower base/higher total airline ($n = 17$) and those in the dripped condition who selected the higher base/lower total airline ($n = 35$). However, the results are virtually identical (and actually stronger) when these responses are included. The results revealed significant main effects of surcharge presentation ($F(1, 346) = 305.48, p < .001$) and perspective ($F(1, 346) = 11.44, p = .001$). However, these main effects were qualified by a significant interaction ($F(1, 346) = 5.76, p = .017$). Specifically, in the non-dripped condition, participants in the self-perspective ($M = 5.90, SD = 1.04$) and other-perspective ($M = 5.75, SD = 1.39$) conditions were equally satisfied with the choice ($F(1, 346) = .52, p = .473$). In contrast, in the dripped condition (i.e., when the lower base/higher total airline was selected), participants in the self-perspective condition felt significantly more satisfied with the choice ($M = 3.48, SD = 1.94$) than those in the other perspective condition ($M = 2.55, SD = 1.52; F(1, 346) = 15.72, p < .001$), consistent with a self-justification account.

6.2.3. Discussion. The results support the idea that self-justification is one factor that helps explain why consumers exposed to drip pricing stick with their initial selection even though it is more expensive and they are relatively dissatisfied with it. Consistent with the self-justification

literature, participants who learned they initially made a mistake by choosing a more expensive option because of drip pricing indicated they were more satisfied with their choice than were those who evaluated the choice from an outsider's perspective. Thus, consistent with participants' self-reports from study 1, consumers may stick with their relatively expensive and unsatisfactory choice because they convince themselves that the price is satisfactory.

7. Study 5

Thus far, we have evidence that a belief that all firms charge similar fees (study 3) and self-justification (study 4) help explain consumers' reactions to drip pricing. In this final study, we test whether inertia—or consumers' belief that switching takes too much time—also helps explain the stickiness of consumers' initial selections when exposed to drip pricing. To test this, we asked participants to make two identically priced but sequential choices (two one-way flights). The options, base fares, and additional surcharges for the two airlines remained constant across the flights. We reasoned that if inertia is a driving factor behind consumers' failure to correct a costly choice by starting over, then we should expect to see participants select and subsequently stick with (i.e., decline to start over) their initial choice for the first ticket, express dissatisfaction with that choice, but then change their selection to the other airline for the second ticket. This pattern would reflect inertia as it suggests that participants knew they made a mistake when booking the first flight (which is why they chose the other, superior option for the second flight), but decided that examining the other option for that first flight was not worth the hassle. On the other hand, if a substantial group of participants selects and sticks with the lower base/higher total airline for the first flight, and then chooses it again for the second flight, it is unlikely that inertia explains the findings, and it is more likely that self-justification or the belief that all airlines charge similar surcharges is operating.

7.1. Methods

7.1.1. Participants and design. The study was completed over the course of two days, with participants booking the first flight on the first day and the second flight on the second day. Given this design, there was some participant attrition across choices. Specifically, the first part of the study was completed by 601 mTurk participants (46.3% female, $M_{Age} = 36.68$, $SD_{Age} = 11.94$) in exchange for \$0.75. Of these participants, 417 also completed the second part of the study (48.4% female, $M_{Age} = 37.78$, $SD_{Age} = 12.08$) in exchange for an additional \$1.25. Because we were primarily interested in participants' second airline choice, and its (in)consistency with their first choice, we focused on the data from the participants who completed both parts of the study (i.e., $N = 417$). However, there was no difference between the participants who completed both parts of the study and those who only completed the first part in terms of their first airline choice ($p = .774$). Participants were randomly assigned to either the non-dripped or dripped surcharges condition, and they remained in the same condition for both flight choices.

7.1.2. Procedure. The procedure for study 5 was virtually identical to that of study 1 with a few modifications. First, prior to participating, potential participants were informed that this was a two-part study and that, if they completed the first part of the study, they could expect to receive an invitation for the second part the following day. Second, because we were interested in consumers' sequential airline choices, we told participants, on the first day, that they were only booking a one-way ticket for now. Participants then made a choice between the two airline options, went through the optional add-ons selection process, decided whether to complete the transaction or start over, and completed the "customer satisfaction" survey. This survey contained the same four questions as were used in study 1 ($\alpha = .72$).

The next day, these same participants were contacted and asked to complete the second

part of the study. The second part was exactly the same as the first part, except that participants read that they now needed to book another one-way flight to a different destination. Participants were then presented with the exact same airline options as in the first part of the study. The way in which the optional surcharges—which were identical to those used in part one—were presented to participants (dripped or non-dripped) was kept consistent across study parts.

After making their airline choice, participants once again went through the purchasing process, decided whether to start over or complete the transaction, and completed the “customer satisfaction” survey for the airline they selected ($\alpha = .60$).

7.2. Results and Discussion

7.2.1. First Airline Choice. Consistent with our previous studies, a greater proportion of participants in the dripped condition chose the lower base/higher total cost airline (54.3%) than in the non-dripped condition (8.7%; $p < .001$).

Next, we investigated participants’ propensity to start over. Overall, only 17.5% of participants decided to start over when given the opportunity to do so. Participants in the dripped condition were significantly more likely to start over (30.5%) than those in the non-dripped condition (4.3%; $p < .001$), and initial airline choice mediated this effect ($Z_{Mediation} = 5.66$, $p < .001$; Iacobucci 2012), with 50.0% of participants who initially selected the lower base/higher total airline starting over, and only 2.5% of those who initially selected the higher base/lower total airline doing the same.

Including those who changed their selection, we found that a greater percent of participants in the dripped condition ultimately selected the lower base/higher total cost airline (30.5%) than did those in the non-dripped condition (4.4%; $p < .001$).

7.2.2. First Airline Choice Downstream Consequences—Overall Satisfaction. Participants in

the dripped surcharges condition were significantly less satisfied with their choice ($M = 5.33$) than those in the non-dripped condition ($M = 5.71$; $p < .001$), and the effect of surcharge presentation on satisfaction was mediated by the ultimate airline choice ($Z_{Mediation} = -4.90$, $p < .001$). Indeed, participants who ultimately selected the lower base/higher total cost airline ($M = 4.55$, $SD = 1.35$) were significantly less satisfied with their choice than those who ultimately selected the higher base/lower total cost airline ($M = 5.73$, $SD = .90$; $t(414) = 9.20$, $p < .001$).

7.2.3. Second Airline Choice. We next examined the extent to which choices were the same or different for the second flight. Consistent with the first flight, participants in the dripped condition were significantly more likely to choose the lower base/higher total cost airline (25.7%) than those in the non-dripped condition (4.8%; $p < .001$) for the second flight.

Next, we investigated participants' propensity to start over for the second flight. Overall, only 6.5% of participants decided to start over. As with the first flight, participants in the dripped condition were significantly more likely to start over (11.4%) than those in the non-dripped condition (1.4%; $p < .001$). This effect was once again mediated by initial airline choice ($Z_{Mediation} = 3.88$, $p < .001$; Iacobucci 2012), with 39.1% of participants who initially selected the lower base/higher total airline for the second flight starting over, and only .6% of those who initially selected the higher base/lower total airline for the second flight doing the same.

After factoring in the consumers who switched their airline choice, we again found that those in the dripped condition were significantly more likely to ultimately select the lower base/higher total cost airline (15.2%) than those in the non-dripped condition (4.4%; $p < .001$).

However, more importantly for the purposes of testing for the possible role of inertia, we next examined the extent to which participants—especially those in the dripped surcharges condition—who for the first flight selected the lower base/higher total cost airline again selected

that same airline for the second flight. Of the 73 participants who ultimately selected the lower base/higher total cost airline for the first flight, 57.5% switched airlines for the second flight, while the others again selected the higher overall cost airline. This percent did not vary significantly depending on whether the optional surcharges were dripped or not ($P_{\text{Dripped}} = 57.8\%$ vs. $P_{\text{Non-dripped}} = 55.6\%$; $Z = .13$, $p = .897$). It is not surprising that the majority of participants who initially selected an option that they learn costs them more than the other option, and for which they are relatively dissatisfied, make a different choice when given a second purchase opportunity. This finding is consistent with the idea that many of these participants knew that the alternative option was potentially preferable for the first flight, but that they experienced inertia that prevented them from starting over. It is unlikely that a desire for variety can explain the large percentage of participants who switched, given that only 2.9% of participants who selected the higher base/lower total cost airline for the first flight switched their airline choice for the second flight. However, it is also notable that a large percentage of participants who selected the lower base/higher total cost airline for the first flight selected it again for the second flight (42.5% overall, 42.2% in the dripped surcharges condition). Although we cannot be sure of the specific mechanism underlying this result, it is possible that self-justification and/or beliefs about surcharges again played at least some part, as we found in studies 3 and 4.

7.2.4. Second Airline Choice, Downstream Consequences—Overall Satisfaction. Participants in the dripped surcharges condition ($M = 5.51$) were marginally less satisfied with their choice than those in the non-dripped surcharges condition ($M = 5.69$; $p = .085$). However, a mediation analysis (Iacobucci 2012) revealed a significant indirect effect of surcharge presentation on choice satisfaction through the airline that participants ultimately selected ($Z_{\text{Mediation}} = -3.18$, $p = .001$). Participants who ultimately selected the lower base/higher total cost airline for the second

flight ($M = 4.43$, $SD = 1.31$) were significantly less satisfied with their choice than those who ultimately selected the higher base/lower total cost airline ($M = 5.72$, $SD = .95$; $t(415) = 7.98$, $p < .001$). Thus, drip pricing again led participants to select the lower base/higher total cost airline for the second flight, which, in turn, led them to be relatively dissatisfied with their selection.

7.2.5. Discussion. Study 5 makes an important contribution by further elucidating the process underlying the stickiness of consumers' initial choices. In particular, this study provides some evidence that inertia helps explain why consumers exposed to drip pricing tend to stick with the lower base/higher total cost option even though it is more expensive than the alternative and they are relatively dissatisfied with it. However, a sizeable percentage of participants who selected the lower base/higher total cost airline for the first flight again selected that airline for the second flight. Given the results from studies 3 and 4, it is likely that this finding is driven, at least in part, by self-justification and/or a belief that all airlines charge similar additional fees. Thus, reactions to drip pricing seem to be multiply determined.

8. General Discussion

This research has two goals: 1) to demonstrate the effect of dripping optional surcharges on consumer choice and satisfaction and 2) to examine the likely effects of current and proposed regulations aimed at drip pricing. Across five studies, we found that participants selected higher priced, relatively unsatisfying options when prices were dripped versus when they were not. Even when participants exposed to drip pricing were given the opportunity to start over and change their selection, they generally stuck with their initial choice. We found evidence that participants' beliefs regarding the similarity of surcharges across firms (study 3), self-justification (study 4), and inertia (study 5) help explain the stickiness of their initial choices.

Given that drip pricing is of high interest to regulators, it is important to examine these

results in the context of current and proposed law. Regulators argue that drip pricing is a deceptive pricing practice that increases consumers' financial and search costs. In response, airlines are now required to include all mandatory (but not optional) surcharges in their advertised prices, and must allow consumers to hold a reservation for 24 hours or cancel a booking without penalty within a 24 hour window. Our results suggest that these requirements, despite being a step in the right direction, may only have a modest effect in helping consumers. Given the sizable revenues associated with surcharges for optional add-ons, the exclusion of these fees from current regulations naturally limits the potential efficacy of the laws. For example, we show that when prices for optional add-ons were dripped, participants consistently chose the provider with the lower *base* price but the higher *total* price (base + optional add-ons). Thus, even when mandatory fees are included in the advertised price, as is currently required, consumers may still experience increased financial cost when exposed to drip pricing. Additionally, participants in our studies were reluctant to change their initial choice when given the opportunity to do so, even though they were relatively dissatisfied with this choice and even though the incremental search cost associated with starting over in our studies was relatively low. This suggests that merely providing consumers with lower cost search options may not be sufficient in actually inducing more search. Finally, we tested the assertion by airlines that drip pricing is not deceptive or harmful because consumers are always provided with total cost information before they make their final purchase. However, these studies show that providing consumers with total cost information prior to their final choice did not significantly change their propensity to select the lower base/higher total cost option. In study S1 in the web appendix, this was true even when total cost information was provided at each step along the purchase path.

Of course our research, like all, has limitations. First, our studies provided stylized and

limited information about the choice options and were confined to online and laboratory settings with paid participants. Although we did include an incentive compatible study, having data on search and payment from actual transactions in a field experiment would bolster our findings. Second, this research focused on the dripping of optional surcharges, given the current debate around whether to expand current regulations to include such fees. However, there is also a debate around rolling back the existing regulations on mandatory surcharges, which this research does not explore. While some prior research demonstrates the adverse effects of drip pricing of mandatory fees (Sullivan 2017), research on this is limited, and there are conflicting findings, so more work is needed. Third, in all of our studies, participants were limited to two choice options and consumer behavior may well differ when there are more options to consider. Finally, given that this research was focused on establishing a baseline understanding of how consumers react to drip pricing, we did not examine individual factors that explain variation in reactions to drip pricing, such as experience in the product category, financial literacy, or comfort with numerical information. Future research should address these limitations.

Given that the effects we observed seem to be multiply determined, future research should also explore other potential explanations. In our studies, participants explained that they stuck with their initial selection—even though they were relatively dissatisfied with it—because they believed that all firms charge similar additional fees, the price of the ticket was satisfactory, and changing their selection would take too much time. Our studies support each of these explanations, but other process accounts may also operate. For example, consumers may stick with an initial choice because of a desire for consistency. Another possibility is that after investing time in making an initial decision, participants may stick with their choice because of sunk cost effects or escalation of commitment (Staw 1976). We tested for possible escalation

effects in study S1 in the web appendix, in which participants were given total cost information and the opportunity to start over after each add-on was added. A restart pattern consistent with an escalation of commitment explanation would likely show the incidence of starting over monotonically decreasing the further the participant got into the purchasing process. Our results did not follow this pattern and thus did not provide evidence for escalation of commitment as a driver of the results. However, we believe future work where the amount of effort invested into the initial decision is manipulated might provide a more compelling test for escalation effects.

It is also possible that consumer choices and satisfaction reflect an affective forecasting error. That is, when the purchase process begins, consumers may (erroneously) predict they will not want the optional add-ons and would be happier with a low price. However, as they progress through the purchasing process, the attractiveness of the optional add-ons increases and consumers therefore end up purchasing them in contrast to their earlier predictions. This is an interesting possibility that should be explored in future research. Also, it is possible that goals play a substantial role in consumer choice and non-switching behavior. Prior research shows that when people are in a deliberative mindset, they are open to additional information and process that information carefully, but once they are in an implemental mindset, they become closed and biased toward the chosen alternative (Beckmann and Gollwitzer 1987). Applying this theory to the present context, if consumers are in a deliberative mindset when they make their initial choice, but an implemental mindset when they are making decisions about add-ons, then fee disclosures prior to (vs. after) the initial choice should be more likely to be considered by consumers and influence their choice behavior, which is consistent with our general findings. Examining consumer choice and satisfaction in response to drip pricing through the lens of goal-directed behavior could be enlightening, particularly as it relates to interventions that might

attenuate self-justification. For example, perhaps consumers could be trained to make if-then implementation intentions (Gollwitzer 1999) when they encounter drip pricing such that if they encounter a fee, they think carefully about what the total cost might be and whether they wish to continue. Finally, understanding the impact of consumer and firm heterogeneity on choice and satisfaction under drip pricing requires more attention. Economists refer to the differential effects of drip pricing on “sophisticates” and “naives” (Gabaix and Laibson 2006) or “rational” actors. Identifying what makes some consumers sophisticates and other naives is needed as is experimental research that shows they react differently to drip pricing. It is also possible that consumer reactions to drip pricing vary with characteristics of the firm, such as reputation. Cheema (2008) demonstrated that firm reputation moderated the effect of surcharges on willingness to pay and purchase timing. While we did not experimentally manipulate firm reputation in our studies, it is possible that it plays a role in how consumers react to drip pricing. As such, these are important questions which should be pursued in order to develop meaningful interventions.

In closing, we hope that this research can be used to inform the current debate regarding the value of existing regulations around drip pricing as well as the proposed expansion of such rules (Silk 2017). Our results show that existing regulations are helpful to consumers, but are not sufficient for protecting them when optional surcharge information is dripped. As such, efforts to roll-back the existing regulations requiring airlines to advertise fares inclusive of government fees and taxes (Elliott 2014a,b) should be viewed with caution, particularly in light of prior research on dripping mandatory surcharges that shows that consumers pay more and search less when such pricing practices are used (Sullivan 2017).

In contrast, we show that expanding current regulations by requiring airlines to disclose

baggage fees from “the beginning of fare inquiry” could benefit consumers and airlines alike. Indeed, participants in our studies were disproportionately more likely to select the higher base/lower total cost option—and to be relatively satisfied with their selection—when surcharges for optional add-ons were provided upfront. As such, fee disclosures need not pit regulators and consumers against firms.

9. References

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Table 2. Initial Choice, Start Over Decision, Ultimate Choice, and Overall Satisfaction Results Across Studies

	% Initially Selecting Lower Base / Higher Total Option		Test Statistic (0 = Non-Dripped, 1 = Dripped)	% Starting Over		Test Statistic (0 = Non-Dripped, 1 = Dripped)	% Ultimately Selecting Lower Base / Higher Total Option		Test Statistic (0 = Non-Dripped, 1 = Dripped)	Mean Overall Satisfaction with Selection (SD)		Test Statistic
	Dripped Condition	Non-Dripped Condition		Dripped Condition	Non-Dripped Condition		Dripped Condition	Non-Dripped Condition		Dripped Condition	Non-Dripped Condition	
Study 1	94.0%	18.9%	B = 4.21, SE = .35, Wald = 146.60, $p < .001$	11.9%	8.0%	B = .88, SE = .62, Wald = 2.00, $p = .157$	82.1%	17.9%	B = 3.92, SE = .43, Wald = 82.91, $p < .001$	4.58 (1.22)	5.52 (1.08)	$F(1, 398) = 65.52, p < .001$
Study 2	31.9%	6.7%	(B = 1.91, SE = .67, Wald = 7.98, $p = .005$)	0.0%	0.0%	N/A	31.9%	6.7%	(B = 1.91, SE = .67, Wald = 7.98, $p = .005$)	5.73 (.99)	5.84 (.92)	$t(91) = .58, p = .563$
Study 3	58.6%	6.4%	B = 2.49, SE = .40, Wald = 38.04, $p < .001$	19.7%	2.0%	B = 2.04, SE = .63, Wald = 10.34, $p = .001$	40.4%	4.9%	B = 2.11, SE = .47, Wald = 20.35, $p < .001$	5.28 (1.35)	5.88 (.89)	$F(1, 395) = 26.63, p < .001$
Study 5 Pt. 1	54.3%	8.7%	B = 2.52, SE = .28, Wald = 79.55, $p < .001$	30.5%	4.3%	B = 2.27, SE = .37, Wald = 37.05, $p < .001$	30.5%	4.4%	B = 2.27, SE = .37, Wald = 37.05, $p < .001$	5.33 (1.21)	5.71 (.91)	$t(414) = 3.64, p < .001$
Study 5 Pt. 2	25.7%	4.8%	B = 1.92, SE = .36, Wald = 28.35, $p < .001$	11.4%	1.4%	B = 2.17, SE = .62, Wald = 12.24, $p < .001$	15.2%	4.4%	B = 1.38, SE = .39, Wald = 12.36, $p < .001$	5.51 (1.12)	5.69 (.99)	$t(415) = 1.73, p = .085$