

# The Short- and Long-Term Effects of Measuring Intent to Repurchase

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We compare the incidence, timing, and profitability of repeated online grocery purchases made by a cohort of consumers whose purchase intentions were measured with those of similar consumers whose intentions were not measured. We find that measuring intentions increases the likelihood of repeat purchase incidence and shortens the time until the first repeat purchase but that these two mere-measurement effects decay rapidly after 3 mo. Still, we find persisting gains in customer profitability over time because the accelerated purchases of the first 3 mo. lead to faster subsequent purchases in the remainder of the period.

As first studied in marketing by Morwitz, Johnson, and Schmittlein (hereafter called MJS; 1993), measuring purchase intentions for a product category can increase the likelihood of first-time purchasing (the mere-measurement effect) and can influence brand choice in this category (Fitzsimons and Morwitz 1996). Recently, the focus has shifted from studying whether these effects occur to why they occur (Fitzsimons and Williams 2000; Morwitz and Fitzsimons 2004). Yet fundamental questions concerning the robustness of mere-measurement effects in a repeat purchase context and about their generalizability over time and over relational behaviors (such as purchase acceleration and customer profitability) remain unanswered.

Although convincing, the original mere-measurement effects documented by MJS are of modest size, based on self-reported behavior, and obtained in a quasi experiment open to alternative explanations. With one exception, subsequent mere-measurement studies continued to focus on the short-term effects of measuring intentions on first-time purchasing. The exception is a study by Dholakia and Morwitz (2002), which found persisting mere-measurement effects

on customer relationship with a financial service. However, this study examined the effect of measuring satisfaction rather than intentions. It is also uncertain whether its results would generalize to repeated purchases of nondurables, a context in which one-time transactional gains often do not lead to long-time relational benefits or improved customer profitability for the company (Niraj, Gupta, and Narasimhan 2001; Reinartz and Kumar 2000; van Heerde, Gupta, and Wittink 2003).

The objectives of this study are to examine whether mere-measurement effects hold for repeated purchases, whether they generalize to relational behaviors (purchase acceleration and customer profitability), and whether they persist over time. To achieve these goals, we conducted a pre-post field experiment in collaboration with a Web-based grocer, which provided detailed, unobtrusive, and longitudinal transactional and relational data for 9 mo. before and after the survey. After presenting our analysis and results, we discuss their implications for research on measurement reactivity, for market research practice, and for public policy.

## CONCEPTUAL OVERVIEW AND RESEARCH HYPOTHESES

### The Mere-Measurement Effect: Theories and Findings

There is ample evidence that measuring intentions can change consumers' subsequent first-time purchases (for a review, see Morwitz and Fitzsimons 2004). In competitive markets, when most existing customers hold positive attitudes toward the product category, measuring intentions increases purchasing in the product category and increases the purchase of accessible and preferred brands. These effects

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have been shown for hypothetical as well as for real brands, for financially important and for relatively inconsequential behaviors, and for delays between intention measurement and behavior over a period ranging from a few minutes to six months (Fitzsimons and Morwitz 1996; Morwitz and Fitzsimon 2004; Morwitz et al. 1993).

Research on self-generated validity theory (Feldman and Lynch 1988) suggests that the measurement process leads survey respondents to form judgments that they would otherwise not form or that would otherwise not be as accessible in memory. The higher accessibility of these judgments, in turn, influences subsequent responses and behaviors, making them more consistent with the expressed judgments.

Consistent with Feldman and Lynch's framework, research on mere measurement has shown that these effects occur because measuring intentions increases the accessibility of attitudes toward the category and toward the brand in the category. Subsequent purchasing is then more consistent with these underlying attitudes than if measurement had not occurred. For example, Morwitz and Fitzsimons (2004) found that measuring general intentions to purchase snacks increases the accessibility of attitudes toward the most accessible brands in the category. They also found that this increased accessibility led to a higher probability of choosing brands with favorable prior attitudes and to a lower probability of choosing brands with unfavorable prior attitudes. In a series of laboratory experiments, they also ruled out the alternative hypotheses that the mere-measurement effects were due to increased accessibility of the choice alternative labels (e.g., brand names) or to attitude polarization.

Research further suggests that this process is usually automatic and nonconscious. Using a process dissociation experimental procedure, Fitzsimons and Williams (2000) found that the mere-measurement effect is primarily driven by automatic processes rather than by conscious deliberation on the intentions questions. Williams, Fitzsimons, and Block (2004) further found that the mere-measurement effect disappears, or even reverses, when consumers think that the intentions question is being asked in a persuasion attempt.

In summary, existing research suggests that the mere-measurement effect created by answering a purchase intentions question is due to an automatic and nonconscious increase in the accessibility of attitudes toward the brand or category.

### Short-Term Mere-Measurement Effects on Repeat Purchases

We expect that measuring purchase intentions not only increases the likelihood of the consumer's making a first-time purchase from a category (as has been shown by MJS) but also increases the short-term likelihood that the consumer will make a repeat purchase of a given product. In a repeat-purchase context, the product is more likely to be accessible in memory than it is for a first-time purchase. Nevertheless, measuring purchase intentions toward this

product should further enhance its accessibility, thereby increasing the chances that the consumer will make an additional purchase. This hypothesis is consistent with studies showing that it is easy to increase attitude accessibility even for commonly used and purchased items (e.g., coffee, candy bars) and that it is particularly easy to increase the accessibility of items with already strong associations (for a review, see Fazio 2001). We therefore make the following hypothesis:

**H1a:** In the short term, measuring purchase intentions increases the likelihood of repurchase incidence.

The next two hypotheses pertain to the effects of measuring purchase intentions on two important relational behaviors: purchase acceleration (the time until the first repeat purchase incidence) and customer profitability (the net profits per customer for the firm over the whole study period). Studying mere-measurement effects on purchase acceleration and customer profitability is particularly interesting for repeat purchase products, such as groceries. In these mature categories, marketing activities often do not enlarge the customer base but can influence the timing, quantity, and price of the products purchased (Uncles, Ehrenberg, and Hammond 1995). It is therefore possible that measuring purchase intentions has no impact on repeat purchase incidence but significantly reduces the time until the first repeat purchase incidence and increases profitability.

We expect that measuring purchase intentions will shorten the time until the first repeat purchase incidence because it makes intentions to repurchase more accessible in memory, relative to procrastination intentions. This, in turn, increases the chances that consumers will act upon their intentions rather than procrastinating or following their habitual purchase timing routine. We therefore make the following hypothesis:

**H1b:** In the short term, measuring purchase intentions accelerates repeat purchase incidence.

Similarly, we expect that measuring purchase intentions will increase the profitability of the customer for the firm. Customer profitability is influenced by all the purchases occurring after the survey and not only by the first repeat purchase after the survey. After the first repurchase has occurred, it is unlikely that any of the increased accessibility due to prior measurement remains. Measurement-induced accessibility is therefore unlikely to lead to future purchases beyond the initial repurchase. On the other hand, the positive impact on the first repurchase is likely to carry through to subsequent purchases because it keeps the category more accessible in memory, compared to consumers in the control group. This argument is supported by studies showing that most consumers are unaware of these types of measurement effects and hence are unlikely to compensate measurement-driven repeat purchases by delaying subsequent purchases (Fitzsimons and Shiv 2001; Morwitz and Pluzinski 1996; Williams et al. 2004). We therefore make the following hypothesis:

**H1c:** In the short term, measuring purchase intentions increases total customer profitability.

### Long-Term Mere-Measurement Effects on Repeat Purchases

Memory accessibility diminishes with the time elapsed since its most recent activation and with the amount of interfering material in the same content domain encountered in the interim (Feldman and Lynch 1988). This suggests that the effects of measuring purchase intentions on future repurchasing behavior are strongest immediately after answering the survey and then decay over time. As for the short-term effects, however, it is important to distinguish between the first two dependent variables, which pertain only to the first repurchase after the survey, and customer profitability, which depends on the total stream of future repurchases. Following Feldman and Lynch (1988), we expect that the effects of measuring purchase intentions on the likelihood and timing of repeat purchasing will decay over time.

To date, only one study has examined how mere-measurement effects evolve over time (Dholakia and Morwitz 2002). These authors hypothesized that the effects of measuring satisfaction on customer banking behavior first increase and then decrease over time. Their rationale is that customer behavior toward banking products requires the occurrence of energizing goals or events, such as a job change or marriage. This hypothesis is not inconsistent with Feldman and Lynch's predictions, provided that one uses a time window commensurate with customers' purchase cycle and long enough for energizing events to occur. In fact, Dholakia and Morwitz find that the noncumulative effects of measuring satisfaction on the opening and closing of bank accounts increases over the first 6 mo. but then starts to decay (they did not examine the persistence of mere-measurement effects on customer profitability). We therefore make the following hypotheses:

**H2a:** Mere-measurement effects on repeat purchase incidence decay over time.

**H2b:** Mere-measurement effects on repeat purchase acceleration decay over time.

For customer profitability, however, we expect no decay over time because of the countervailing effects of measuring purchase intentions on the two drivers of profitability, the incidence and timing of the first repeat purchase and the number (and profitability) of subsequent purchases. As stated in hypotheses 2a and 2b, the effects of measuring purchase intentions on the likelihood and timing of the first repeat purchase after the survey decay over time, contributing to decay effects in customer profitability, too. On the other hand, the effects of measuring purchase intentions on the number and profitability of subsequent purchases should increase over time. This is because the earlier repeat purchase made in the first months after the survey keeps the

category more accessible in memory than it is for the control group, leading to additional purchases. In other words, although the increased accessibility due to the survey itself diminishes over time, it is later supplemented by an increased accessibility due to the accelerated repeat purchases of the first months after the survey. We therefore make the following hypothesis.

**H2c:** Mere-measurement effects on total customer profitability persist over time.

## STUDY DESIGN AND RESULTS

### Procedure

To test hypotheses 1 and 2, we conducted a large pre-post field experiment in collaboration with a leading French Web-based grocer. Customers (251) were contacted by telephone during the last week of May and the first week of June 2002 and answered two questions about their intentions to order from the company again (Cronbach's  $\alpha = .86$ ). These customers were chosen at random among all the customers who had made their first purchase with the online grocer in October or November 2001. Another 140 consumers were randomly selected from the same cohort to serve as the control group, and they did not answer the survey questions. The company provided the date and the profits generated by each transaction made during the nine months leading up to and following the survey.

Because only existing buyers were surveyed, intention scores were generally positive and negatively skewed ( $M_{\text{survey}} = 3.86$ , skewness =  $-1.13$ , on a scale anchored at 1, "completely disagree," and 5, "completely agree"). There were no statistically significant differences between the survey and control groups in terms of presurvey interpurchase duration ( $F(1, 390) = .76$ ,  $p = .39$ ), transaction value ( $F(1, 390) = .41$ ,  $p = .52$ ), recency of the last transaction before the survey ( $F(1, 390) = .01$ ,  $p = .92$ ), age ( $F(1, 179) = 2.79$ ,  $p = .10$ ), and pet ownership ( $F(1, 390) = 2.31$ ,  $p = .13$ ). There were more customers with children in the survey group than in the control group ( $M_{\text{survey}} = 36\%$  vs.  $M_{\text{control}} = 26\%$ ,  $F(1, 390) = 4.58$ ,  $p < .05$ ), but including the number of children in the analyses did not change the results, and we therefore report only the analyses without covariates.

### Short-Term Effects

We measured repeat purchase incidence (i.e., the likelihood of repeat purchasing) using a binary variable indicating whether the consumer placed at least one order with the Web-based grocer in the 2 mo. following the survey. We used a 2-mo. time window because most consumers bought either once a month or once every other month. As shown later, the results are similar when using a 1-mo. or a 3-mo. time window. Consistent with hypothesis 1a, the percentage of consumers making at least one repeat purchase within the first 2 mo. after the survey was higher in the survey

group than in the control group ( $M_{\text{survey}} = 26.7\%$  vs.  $M_{\text{control}} = 16.4\%$ ,  $\chi^2(1) = 5.34$ ,  $p < .03$ , effect size  $r = .12$ ).

We measured purchase acceleration as the number of days until the first repeat purchase, conditional on at least one purchase being made. Consistent with hypothesis 1b, when a purchase occurred in the 2-mo. period, it occurred 11 days earlier in the survey group than in the control group ( $M_{\text{survey}} = 21.9$  days vs.  $M_{\text{control}} = 32.9$  days,  $t = 2.54$ ,  $p < .02$ ,  $r = -.27$ ). Similar results were obtained using inverse purchase latencies, a variable defined even in the absence of a purchase (when it is set to zero). Inverse purchase latency was higher in the survey group than in the control group ( $M_{\text{survey}} = .13$  days<sup>-1</sup> vs.  $M_{\text{control}} = .06$  days<sup>-1</sup>,  $t = 2.36$ ,  $p < .02$ ,  $r = .10$ ), indicating that the first repeat purchase tended to occur earlier in the survey group than in the control group.

We measured total customer profitability as the net profits attributable to the customer (i.e., the sum of the margin on all the orders placed in the 2-mo. period, minus coupons and delivery costs). Because the company routinely surveys its customers and would continue to do so even in the absence of measurement-induced purchases, we treated the cost of administering the survey as a fixed cost and did not subtract it from the contribution of surveyed customers. Consistent with hypothesis 1c, 2 mo. after the survey, the average profit per customer is almost twice as high in the survey group as it is in the control group ( $M_{\text{survey}} = \text{€}6.07$  vs.  $M_{\text{control}} = \text{€}3.83$ ,  $t = 2.02$ ,  $p < .05$ ,  $r = .10$ ).

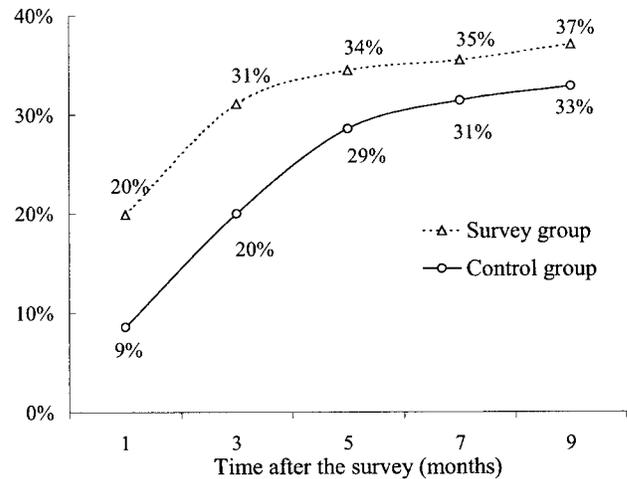
In summary, all three hypotheses about the positive short-term effects of measuring purchase intentions on the likelihood, timing, and profitability of repeat purchases were supported.

### Long-Term Effects

**Repeat Purchase Incidence.** To test hypothesis 2a (that mere-measurement effects on repeat purchase incidence decay over time), we compared repeat purchase incidence (i.e., the cumulative percentage of consumers making at least one repeat purchase) in the survey and control groups over four nested time horizons (1 mo., 3 mo., 6 mo., and 9 mo. after the survey). These data were analyzed using a repeated-measure ANOVA with one four-level within-subject factor (TIME), one two-level between-subject factor indicating whether intentions were surveyed or not (GROUP), and their interaction. As figure 1 shows, the cumulative percentage of consumers making at least one repeat purchase after the survey increases over time but at a decreasing rate for both groups. Confirming this, the main effect of TIME is significant ( $F(3, 1,167) = 66.2$ ,  $p < .01$ ), but contrast tests comparing each time period to the next diminish over time (1 mo. vs. 3 mo.:  $F(1, 389) = 45.67$ ,  $p < .01$ ; 3 mo. vs. 6 mo.:  $F(1, 389) = 30.2$ ,  $p < .01$ ; 6 mo. vs. 9 mo.:  $F(1, 389) = 9.8$ ,  $p < .01$ ). As expected, figure 1 also shows that the difference between the survey and control groups diminishes over time. Because of this decay, the main effect of GROUP over the four periods is not

FIGURE 1

PERCENTAGE OF CONSUMERS MAKING AT LEAST ONE REPEAT PURCHASE AFTER THE SURVEY



significant ( $F(1, 389) = 3.4$ ,  $p < .10$ ) but its interaction with TIME is ( $F(3, 1,167) = 2.98$ ,  $p < .03$ ). Contrast tests further show that the decay in mere-measurement effects occurs between 3 and 6 mo. (1 mo. vs. 3 mo.:  $F(1, 389) = .01$ ,  $p = .94$ ; 3 mo. vs. 6 mo.:  $F(1, 389) = 6.76$ ,  $p < .01$ ; 6 mo. vs. 9 mo.:  $F(1, 389) = .08$ ,  $p = .78$ ).

**Repeat Purchase Acceleration.** To test hypothesis 2b (that mere-measurement effects on repeat purchase acceleration decay over time), we analyzed the time until the first repeat purchase incidence using a Cox regression with time-varying parameters. This method accounts for the right truncation in the data (the time of the first repeat purchase is not observed for consumers who did not purchase in the nine-month postsurvey period). It also allows us to test whether the effects of intention measurement vary over time by estimating the following hazard function:

$$h(t) = [h_0(t)] \exp(\beta_1 * \text{GROUP} + \beta_2 * t * \text{GROUP}).$$

Where  $h(t)$  is the probability of making a repeat purchase at time  $t$  (the number of days after the survey) given that no purchase has been made before, GROUP is a binary variable coded .5 for the survey group and  $-.5$  for the control group,  $h_0$  is the baseline hazard function, and  $\beta_1$  and  $\beta_2$  are parameters capturing, respectively, the effects of measuring purchase intentions on the day after the survey and their interaction with time (the evolution over time of the effects of measuring purchase intentions).

The Cox regression replicates the earlier results on the short-term effects of measuring purchase intentions on purchase timing ( $\beta_1 = .75$ ,  $\exp(\beta_1) = 2.11$ , Wald = 7.56,  $p < .01$ ). The chances of making a repeat purchase the day after the survey are 2.11 times higher in the survey group than in the control group. Consistent with hypothesis 2b,

there was a negative interaction between GROUP and TIME ( $\beta_2 = -.008$ ,  $\exp(\beta_2) = .99$ ,  $\text{Wald}(1) = 7.57$ ,  $p < .01$ ), indicating that each day after the survey reduces the effects of intention measurement by 1%. This analysis, therefore, predicts that measuring purchase intentions has a positive effect up to 94 days and a negative effect after that. In fact, figure 2 shows that the monthly hazard rate (i.e., the non-cumulative probability of a consumer's making a first repeat purchase in the month given that no purchase has occurred before) is higher in the survey group than in the control group in the first 3 mo. and then becomes slightly lower for the rest of the period. The strong purchase acceleration happening in the survey group over the first three months is thus followed by a purchase deceleration of smaller magnitude in the latter 6 mo. Of course, the cumulative probability of making a first repeat purchase remains higher in the survey group than in the control group at any given time during the full 9 mo.

**Customer Profitability.** To test hypothesis 2c (that mere-measurement effects on customer profitability persist over time), we computed the cumulative profits per customer for four nested periods (1 mo., 3 mo., 6 mo., and 9 mo. after the survey) and analyzed these data using the same repeated-measure ANOVA as for purchase incidence (but with a square root transformation of the dependent variables because of the skewness of the data). As figure 3 shows, cumulative customer profitability increases over time, but, in contrast to the case for purchase incidence, this increase is stable over time. Supporting this, there is a strong main effect of TIME ( $F(3, 1,167) = 95.66$ ,  $p < .01$ ), and the contrast tests comparing consecutive periods are of the same magnitude (1 mo. vs. 3 mo.:  $F(1, 389) = 63.72$ ,  $p < .01$ ; 3 mo. vs. 6 mo.:  $F(1, 389) = 78.94$ ,  $p < .01$ ; 6 mo. vs. 9 mo.:  $F(1, 389) = 54.27$ ,  $p < .01$ ). Figure 3 further shows

FIGURE 2

## MONTHLY HAZARD RATE OF FIRST REPEAT PURCHASE AFTER THE SURVEY

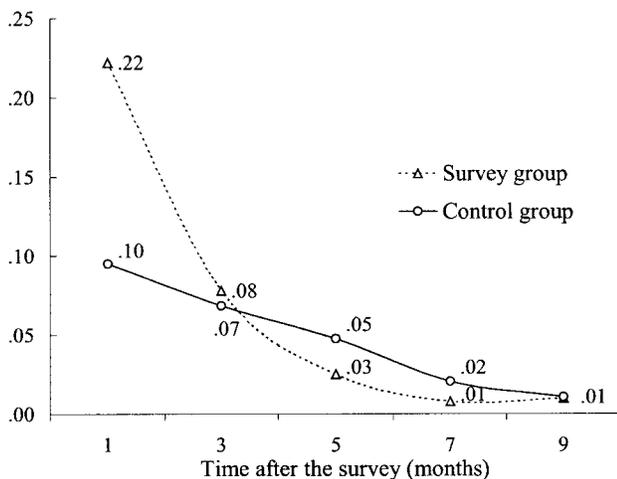
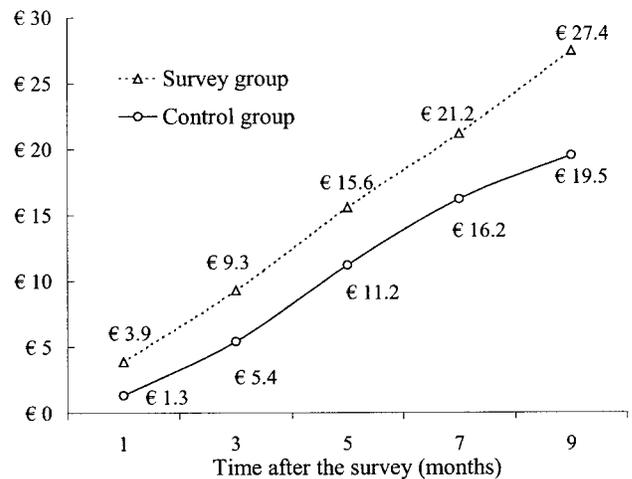


FIGURE 3

## CUMULATIVE PROFITS PER CUSTOMER AFTER THE SURVEY



that, as expected, measuring intentions leads to a persistent and stable improvement in profitability. Unlike for repeat purchase incidence, the main effect of GROUP remains significant ( $F(1, 389) = 3.8$ ,  $p = .05$ ), and its interaction with TIME is not significant ( $F(1, 1,556) = .13$ ,  $p = .95$ ).

In summary, all three hypotheses about the long-term effects of measuring purchase intentions on the likelihood, timing, and profitability of repeat purchases were supported.

## DISCUSSION

The objectives of this study were to examine whether mere-measurement effects hold for repeated purchases, generalize to relational behaviors (purchase acceleration and customer profitability), and persist over time. Examining short-term effects first, we found that, in the first 3 mo. after the survey, measuring purchase intentions significantly increases the percentage of consumers making at least one repeat purchase, significantly decreases the time until the first repeat purchase, and significantly increases the net profits per customer. The effects are stronger and more reliable than those found in the original results by MJS (1993), which is remarkable given that the sample sizes are about 20 times smaller. One explanation may be the lower experience of consumers with online grocery shopping than with purchases of automobiles or personal computers (MJS [1993] found stronger mere-measurement effects for novices than for experienced consumers).

Looking at longer-term effects gave us a different picture. As expected, the effects of measuring purchase intentions on the likelihood and timing of the first repeat purchase after the survey decay rapidly over time. Consumers in the control group start catching up with consumers in the survey group after the fourth month, so that, by the ninth month, the customer base is comparable in both groups. This result is consistent with the empirical generalization that marketing

activities do not significantly enlarge the long-term customer base of most common repeat purchase products (Uncles et al. 1995). In fact, mere-measurement effects on the hazard rate of the first repurchase incidence reverse after the third month. Compared to consumers in the control group, consumers in the survey group are more likely to make a first repeat purchase in the first 3 mo. but less likely to make a first repeat purchase in the latter 6 mo. In other words, the enlarged customer base of the first months is almost entirely due to accelerated purchases by consumers who would have bought later.

The strong decaying mere-measurement effects are inconsistent with those reported by Dholakia and Morwitz (2002), who found that the effects of measuring satisfaction on the opening and closing of bank accounts increase during the first 6 mo. before starting to decrease and that they remain positive throughout the period (i.e., no reversal). The likely explanation of their nonmonotonic pattern has to do with differences in the frequency of measurement relative to the purchase cycle of the products in the two studies. Using frequent enough measures, we also found an inverted U-shape hazard function (e.g., the hazard rate is smaller in the first half month than in the second half month after the survey because most consumers wait at least 1 mo. before placing an order). The differences in persistence are more intriguing. One explanation is that the 9 mo. of data in our study are long enough for consumers in the control group with a nonzero probability of repurchasing to eventually do so, which explains the decaying mere-measurement effects. The 12 mo. of data in Dholakia and Morwitz (2002) may not be long enough for consumers in their control group to catch up with those in the survey group by opening new bank accounts.

Finally, we found that the decaying mere-measurement effects on the likelihood and timing of the first repeat purchase do not lead to decaying profitability over time. On the contrary, the gain in customer profitability regularly increased over time, starting at €2.50 in the first month and reaching €7.90 over the full 9 mo. (note that this increase was not statistically significant). Although the accelerated first repeat purchases made in the first 3 mo. are later compensated, they lead to faster subsequent purchasing and, thus, to persisting profitability gains. These results provide further evidence for the need to study not only short-term, onetime transactions but also the long-term relationship between the customer and the firm. They confirm prior studies showing that customer profitability is a better measure of the value of the customer than purchase incidence or timing alone. Of course, these higher profits need to be compared to the cost of measuring intentions if mere-measurement effects are the primary objective of the survey. This, however, could raise legal concerns because, in some countries, market research cannot legally be used to influence consumers. It could also raise ethical issues, since consumers are not conscious of the mere-measurement effects (however, Sprott et al. [2003] show that measurement-induced

behavior changes can also be used to alter human behavior in a socially desirable direction).

Future research should examine whether the social norms and cognitive dissonance underlying the related self-prophecy effects (Sherman 1980; Sprott et al. 2003) may also operate when measuring intentions toward behaviors not subject to established social norms. Another interesting topic would be to design a method for measuring self-generated validity effects. Such a method could be applied to measure the true association between latent (unmeasured) purchase intentions and subsequent purchasing behavior.

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