

Who Uses Tips as a Reward for Service and When?

An Examination of Potential Moderators of the Service-Tipping Relationship

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ABSTRACT

Consumers in many countries often give voluntary payments of money (tips) to the workers who have served them. These tips are supposed to be a reward for service and research indicates that they do increase with customers' perceptions of service quality. This paper contributes to the service-tipping literature by examining numerous potential moderators of this relationship in two studies. Results indicate that the service-tipping relationship is robust across meal type, day of week, sex and race of server as well as customers' alcohol consumption, education, income, race, worship frequency, and hospitality work experience, but that it is stronger for older consumers than for younger ones and for parties with large bills than for parties with smaller bills. The practical and theoretical implications of these and other findings are discussed.

Keywords: Tipping, service, relative thinking

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1. Introduction

Consumers in many countries often leave voluntary sums of money (tips) for workers in the service industry who have served them. Among the many service workers commonly tipped are bartenders, barbers, concierges, cruise cabin stewards, delivery drivers, doormen, exotic dancers, golf caddies, hotel maids, musicians, parking valets, porters, restaurant waiters, taxicab drivers, and tour guides (Star, 1988). Although the amounts given by a single customer to any one worker are typically modest, they are not negligible. For example, tipping typically increases the cost of dining out by 10 to 16 percent and often increases the costs of taxicab rides by 7 to 12 percent depending on the country in which the service occurs (Lynn and Lynn, 2004). Moreover, the total amount tipped to all workers is substantial with one estimate placing the annual tips in the United States alone at over \$45 billion (Azar, 2011a). Understanding the motivations, causes, and processes underlying this behavior is important from both a practical and theoretical perspective.

From a practical perspective, tipping affects the perceptions and experiences of consumers (Lynn and Withiam, 2008), the incomes, attitudes, and behaviors of service workers (Kwortnik, Lynn and Ross, 2009; Lynn, 2002; Lynn, Kwortnik and Sturman, forthcoming), and ultimately the performance and profitability of service firms (Azar, 2011a; Lynn and Withiam, 2008; Schwartz, 1997). A better understanding of the determinants of tipping would inform consumers' efforts to reform the practice (May, 1980), servers' efforts to increase their incomes (Lynn, 2011a), service managers' efforts

to train and motivate their employees (Azar, 2004a; Lynn, 2005), and executives' efforts to expand into new geographic markets and to set optimal pricing and tipping policies (Azar, 2003; Lynn, 2004; Lynn and Withiam, 2008).

From the perspective of neoclassical economic theory, tipping appears to be irrational (Lynn, 2006; Saunders & Lynn, 2010). Tips are not legally required and are not given until after service is delivered, so they are not necessary to ensure good current service. If tip sizes are made contingent on service quality they could be used to buy future service, but repeated failures to find a service quality by patronage frequency interaction effect on tip size undermines this potential rational explanation for tipping (Azar, 2009; Conlin, Lynn and O'Donoghue, 2003; Lynn and McCall, 2000) as does the fact that people tip in establishments they will never revisit (Kahneman, Knetsch and Thaler, 1986). An adequate explanation of tipping must go beyond a rational economic motivation and embrace psychological motivations such as desires to reward good service, help servers, and gain social approval or status (Lynn, 2006; Saunders and Lynn, 2010). A better understanding of the motivations and causes underlying tipping would inform economists' and other scholars' attempts to build more realistic and comprehensive theories and models of consumer behavior.

2. Research on the Service-Tipping Relationship

Research on tipping has appeared in the journals of such diverse disciplines as anthropology, economics, hospitality management, services marketing, psychology, sociology, and tourism (see Azar, 2007a, and Lynn, 2006, for reviews). A recurring theme in this research is the relationship between tipping and service. Tips are supposed to be an incentive/reward for service, so researchers have repeatedly examined the

relationship between ratings of service and tip size, especially in restaurant settings. This research repeatedly supports three conclusions about the service-tipping relationship – (i) restaurant tips do increase with service ratings, though the relationship is weak (Azar, 2009; Lynn and McCall, 2000), (ii) the service-tipping relationship is not moderated by patronage frequency (Azar, 2007a; Conlin, Lynn and O’Donoghue, 2003; Lynn and McCall, 2000), and (iii) some individuals base their restaurant tips on service more than do other individuals, though what specific traits or characteristics underlie these individual differences is unclear (Lynn and Sturman, 2010; Rogelberg, Ployhart, Blazer and Yonker, 1999).

In addition to the above consistent findings, limited evidence suggests that the tendency to increase tips with service quality is stronger among Asian and Hispanic consumers than White consumers (Lynn and Thomas-Haysbert, 2003), among older consumers than young ones (Lynn and Katz, forthcoming), and among those who attend religious worship services less frequently (Lynn and Katz, forthcoming). Furthermore, isolated findings in the published literature suggest that the service-tipping relationship may be stronger on weekdays than weekends (Conlin, Lynn and O’Donoghue, 2003), for waiters than waitresses (Lynn and Simons, 2000), for dinner than lunch (Lynn and Simons, 2000), and for white servers than black servers (Lynn, Sturman, Ganley, Adams, Douglas and McNeil, 2008). These isolated findings are interesting, but need to be replicated.

This paper contributes to the literature on the service-tipping relationship by attempting to replicate many of the isolated findings of moderation effects described above and by testing several potential new moderators, namely customer political

affiliation, customer personality, customer sex, customer hospitality work experience, alcohol consumption and bill size. Reasons for believing these new variables may moderate the service-tipping relationship are described below.

- Conservatives tend to value equity (vs equality) based distributions of resources more than do liberals (Farwell and Weiner, 2000; Rasinski, 1987), so Republicans may be more inclined than Democrats to base tips on service.
- The Big Five personality trait of agreeableness reflects a tendency to be gentle, acquiescent, lenient, flexible, and forgiving (Shafer, 1999), so highly agreeable people may be reluctant to punish bad servers with small tips, which would weaken the service-tipping relationship.
- The Big Five personality trait of conscientiousness reflects a tendency to be hardworking, responsible, and self-disciplined (Shafer, 1999), so highly conscientious people may want to reward hard work and good service more than do less conscientious people, resulting in a stronger service-tipping relationship among the former group.
- Men tend to like “proportional merit” based rules for resource distribution more than do women (Austin and McGuinn, 1977; Dickinson and Tiefenthaler, 2002), so men may be more likely to base tips on service than are women.
- Hospitality workers self-images are more strongly affected than those of others by perceptions of tips as charity vs deserved income (Suarez, 2009), so they may be more likely than others to base the tips they give on

service as both a reflection and reinforcement of their motivated conviction that tips are and should be earned.

- Alcohol reduces people's cognitive abilities and makes them more myopic, which means that intoxicated people's behavior is more strongly influenced by the highly salient cues in a situation and less influenced by those cues that are less salient (Steele and Josephs, 1990). Thus, alcohol consumption could increase or decrease the service-tipping relationship depending on how salient service is to tippers at the time they make their tipping decisions.
- Bill size combines with tips to make up the monetary costs of dining out at a restaurant. Research suggests that consumers often assess changes to costs in relative terms such that a \$5 increase affects consumers less when the base price is \$200 than when it is \$20 (Azar, 2007c, 2011b). If this relative thinking occurs in restaurants, then differences in absolute tip amounts would seem smaller the larger the bill size and dollar tips should increase with service more the larger the bill size.

These and the previously identified moderators of the service-tipping relationship are examined in the two studies reported below. Study 1 uses data from consumer diaries kept by a student sample. To address issues of generalizability across methods and samples, Study 2 uses data from an online survey taken by a more diverse and wealthier sample from a commercial consumer panel.

Study 1

Study 1 used a consumer diary methodology to assess the effects on tip amounts of service interactions with experience working for tips, customer sex, customer race, server sex, server race, weekend (vs weekday), meal type, alcohol consumption, and bill size.

3.1 Method

Students in a hospitality course at a university in the southern United States were promised extra class credit in exchange for participation in a multi-week study of restaurant tipping. Participants first completed a questionnaire (called “personal information”) containing questions about their sex (male= 1, female =2), age (in years), race (coded as white =1 and non-white = 0 due to small numbers of specific types of non-white participants), and hospitality/restaurant work experience (yes = 1, no = 0). Gosling, Rentfrow and Swann’s (2003) ten item measure of the Big Five personality traits was also included in this questionnaire, but its items did not load on the five expected factors and the subscale reliabilities were very poor, so it was not used in these analyses.

Then, over the next four weeks, participants completed brief questionnaires (called “journal entries”) about specific commercial eating and drinking experiences where they were responsible for paying at least part of the bill. Participants were given six dining experience surveys and asked to complete one each time they went out to eat or drink during the study period. Information from each dining experience survey was coded into the following variables:

(1) weekend (F, Sa, Su: yes = 1, no = 0),

- (2) dinner (yes = 1, no = 0 ; coded from a broader question about meal type that was used as a screening variable as described below),
- (3) time (total time in minutes spent in the establishment),
- (4) tip (amount the participant contributed towards the tip in dollars and cents),
- (5) bill (amount the participant contributed towards the bill in dollars and cents),
- (6) dessert (whether or not the meal included dessert: yes = 1, no = 0),
- (7) alcohol (whether or not alcohol was consumed: yes = 1, no = 0),
- (8) sex of server (male = 1, female = 2),
- (9) race of server (coded as white = 1 and non-white = 0 due to small numbers of specific types of non-white servers),
- (10) service quality index (average of ratings of the server's "presentation skills," "appearance," "friendliness," "attentiveness," and "promptness" using a 10 point scale whose endpoints were labeled "Poor" and "Excellent"; index coefficient alpha = .92),
- (11) food quality index (average of ratings of the food's "appearance," "taste," "portion size" and "value for the money" using a 10 point scale whose endpoints were labeled "Poor" and "Excellent"; index coefficient alpha = .88), and
- (12) room quality index (average of ratings of the dining room's "lighting," "temperature," "noise level" and "crowd level" using a 10 point scale whose endpoints were labeled "Poor" and "Excellent"; index coefficient alpha = .81).

Data were obtained on 614 eating and drinking experiences of 124 participants. However, to eliminate records for take out, fast food, and/or drinks only, which are very different from the eat-in restaurant meals with table service that are of interest, we dropped observations where (i) meal type was missing or indicated that no food was

served, (ii) no tip was given or recorded, (iii) meal duration was unrecorded or less than 15 minutes, and (iv) bill size was unrecorded or less than \$3. In addition, cases where entries duplicated a previous entry from that subject were also deleted. This resulted in 466 eat-in restaurant dining experiences from 122 participants being available for analysis. The number of dining experiences per participant ranged from 1 to 6 with a mean of 4.5 and a standard deviation of 1.3. In order to avoid further loss of observations from occasional missing values for some predictor variables, missing values were replaced with the means of continuous predictors and the modes of categorical predictors. See Table 1 for descriptive statistics on the final sample.

3.2 Results

The data were analyzed using fixed-effects regression that provided within-subjects estimation of the regression coefficients and robust standard errors adjusted for clusters in subject. Model 1 predicted tip amount (in dollars and cents) from bill, bill squared, time, dinner, alcohol, dessert, weekend, server sex, server race, food index, room index, and service index as main-effect predictors ($R^2_{\text{within}} = .895$, $F_{\text{model}}(13, 120) = 66.70$, $p < .0001$). The results of this analysis indicated that tip amounts significantly increased with bill size, time duration of the meal, and service quality (see Table 2). These effects all make sense - the positive effect of bill size is consistent with the 15 to 20 percent tipping norm, the positive effect of time spent on the meal compensates the server for the lost opportunity of seating and serving other customers at the table, and the positive effect of service quality compensates the server for doing a good job.

Model 2 included all the main effects from Model 1 plus the interactions of service with hospitality work experience, customer sex, customer race, customer age,

weekend, server sex, server race, dinner, alcohol consumption, and bill size ($R^2_{\text{within}} = .91$, $F_{\text{model}}(22, 121) = 285.80$, $p < .0001$). The only variables to significantly moderate the effects of service in this analysis were customer sex and bill size (see Table 2). Surprisingly, women increased their tips with service quality to a greater degree than did men. This finding is contrary to previous research indicating that men more than women prefer merit-based over equality-based distributions of rewards (Austin and McGuinn, 1977; Dickinson and Tiefenthaler, 2002). The current result suggests that this sex-based preference is context specific, though specifically what about the restaurant tipping context causes it to be reversed is not clear. The other moderation effect was more in line with expectations. Consistent with relative thinking theory (Azar, 2007c), tips increased with service more the larger the bill was.

Some might argue that relative thinking in tipping contexts is caused by a situation specific social norm that calls for tipping 15 to 20 percent of the bill rather than a generalized way of thinking. People could comply with the tipping norm by taking all factors into consideration, deciding on a tip percentage, calculating that amount, and leaving it as a tip. If that is what people did, it could explain our results without a generalized tendency for relative thinking. However, the tipping norm does not require this percentage thinking; all it requires that final tip amounts fall within 15 to 20 percent of the bill size. Moreover, given weak math skills (Lipkus, Samsa and Rimer, 2001) and a general distaste for effortful thinking (Gararino and Edell, 1997), it seems unlikely that most consumers would follow the norm in that way. It is more likely that consumers use some easy to calculate standard tip percentage (whether 10%, 20%, or double the sales tax) to get within the normative ballpark, but otherwise think about how much to tip in

dollars and cents. For example, someone with a \$30.00 bill might calculate 15 percent of the bill to be \$4.50, decide the service warrants a larger than standard tip, and round the calculated amount up to \$6.00. Alternatively, that person might decide to tip \$5.00 and then do some simple calculations make sure that amount is more than 15 percent.

Some support for the idea that people think about precisely how much to tip in dollar rather than percentage terms can be found in scatter plots of percentage tip against bill size (Figures 1) and dollar tip against bill size (Figure 2).¹ Clearly tip amounts are clustering around dollar amounts rather than percentages. Importantly, specific dollar tip amounts are associated with a wide range of bill sizes, so people are not simply rounding selected normative tip percentages to the nearest dollar. If people are selecting precise percentages to tip, then two unlikely things are happening. First, many people are deliberately selecting tip percentages that fall well outside the normative range – e.g., 30 to 60 percent of the bill size. Second, people are undermining their selection of tip percentages by rounding the calculated amount to a whole dollar. More likely is that the vast majority of consumers think about and leave tips in whole dollar amounts that range from one to six dollars with the choice of a larger whole dollar amount occurring more frequently the larger the bill so that the tip amount exceeds the 15 percent minimum mandated by the tipping norm. This is a plausible mental process that is simple and consistent with what we know about people being cognitive misers and social conformists. Furthermore, it plausibly explains very large percentage tips as the result of

¹ The graphs' ranges are restricted to show the bulk of the data in greater detail. This restriction encompassed the vast majority of the observations and did not distort the overall pictures of the relationships. A regression of percent tip on bill size and bill size squared produced both a significant negative linear effect ($B = -.27$, $t(463) = -5.22$, $p < .001$) and a significant positive quadratic trend ($B = .001$, $t(463) = 3.79$, $p < .001$). A regression of tip amount on bill size, bill size squared and bill size cubed produced a significant linear relationship ($B = .16$, $t(462) = 10.61$, $p < .001$) with no quadratic ($B = .000$, $t(462) = 1.05$, n.s.) or cubic ($B = -.000$, $t(462) = -1.13$, n.s.) trends.

decisions to leave modest dollar tips (in the one to six dollar range) when the bill size is small.

If, as the data suggest, consumers think about precisely how much to tip in dollar terms rather than in percentage terms, then our finding that delivering good service brings larger returns (in terms of tip amounts) the larger the bill size is unlikely to be a context specific, norm driven tendency to choose and leave percentage tips. Instead it reflects a more general tendency to think in relative terms. Most of the previous evidence supporting relative thinking comes from hypothetical scenarios and a previous “real world” test failed to find evidence for it, leading the investigators to suggest that “financial incentives might alleviate relative thinking” (Azar, 2010). Our findings suggest that conclusion was premature - relative thinking does occur in the face of financial incentives in the real world.

To see if the relative thinking effect generalizes, we ran an additional analysis to test the interaction of bill size with the other variable producing meaningful main effects – i.e., time duration of the meal. This analysis also involved fixed-effects regression that provided within-subjects estimation of the regression coefficients and robust standard errors adjusted for clusters in subject. In this model, tip amount (in dollar and cents) was predicted from bill, bill squared, time, dinner, alcohol, dessert, weekend, server sex, server race, service index, food index, room index, the interactions of service with customer sex and bill size, and the interactions of bill size with time ($R^2_{\text{within}} = .91$, $F_{\text{model}}(15, 121) = 259.82$, $p < .0001$). This analysis produced a significant negative bill x time interaction (see Table 2). Spending more time at the table increased tips less the larger the bill. This effect is opposite of what we initially expected based on relative

thinking. Upon reflection, however, the interaction of bill and time spent at the table is a poor test of relative thinking theory (Azar, 2007c). Presumably, time spent at the table increases tip size relative to bill size as a way of compensating the server for the lost opportunity to seat and serve other paying/tipping customers. In other words, it is compensation for slow or lingering customers' inefficient use of the table from the restaurant and servers' perspective, or put another way, for slow or lingering customers' low ratio of bill amount to table-time. However, the larger the bill size the larger the ratio of bill amount to table-time (the more efficient the customers' use of the table), so there is less need for a compensatory increase in tip size relative to bill size. Looked at this way, the negative interaction of bill size and table-time says nothing about relative thinking theory, but does provide some evidence supporting the "compensation for lost opportunity" explanation of the positive table-time main effect.

Although not a major focus of this paper, we also performed a between subjects regression of tip amount on the situational, main-effect predictors in Model 1 (in other words, we used the same model but without controlling for subject identity) and then averaged the residuals within subjects to get a measure of individual differences in tipping that controlled for those situational, main-effect predictors. We then used these mean residuals as a dependent measure in a regression model that included the subject's age, sex, race, and hospitality work experience as predictors. This analysis, which used heteroskedasticity robust standard errors, produced no significant effects for either the model as a whole ($F_{\text{model}}(4, 117) = 1.19, n.s.$) or any of the individual predictors (all t -values $< 1.50, n.s.$).

4. Study 2

Study 2 used an internet survey to assess the effects on tip amounts of service interactions with experience working for tips, conscientiousness, agreeableness, age, sex, race, education, income, religious worship frequency, political affiliation and bill size. In addition, it asked subjects to choose which of several processes best describes how they determine tip amounts and allowed us to test the interaction between service and bill size among consumers who say they do not deliberately choose a specific tip percentage.

4.1. Method

In Study 2, members of the Survey Sampling International consumer panel who were at least 18 years old and resided in the United States were invited to participate in a survey concerning tipping. An attempt was made to get 200 Whites, 200 Hispanics, and 200 Blacks in the sample, so stratified sampling was used in sending out the invitations. The obtained sample consisted of 384 Whites, 229 Blacks, 215 Hispanics and 36 people of other or unknown race for a total of 864 participants. However, outliers (identified below) and missing values for some variables meant that data from only 687 participants were included in the analysis. See Table 3 for descriptive statistics on the final sample.

Survey participants were asked to indicate how much in dollars and cents they would tip on one of two randomly assigned bill sizes (\$21.32 or \$46.23) if the service was “unusually good,” “average” and “unusually bad.” Thus tipping was measured across three within-subject levels of service quality and two between-subjects levels of bill size. Data from 16 participants who listed one or more tip amounts that exceeded the bill size were dropped from analysis as outliers.

Among other questions, participants were also asked to provide information about:

- (i) whether or not they had “ever worked for tips before” (yes=1, no = 0),
- (ii) their personality using Langford’s (2003) single item measures of the Big Five personality traits (only Conscientiousness and Agreeableness were theoretically relevant and, therefore, used in the analyses),
- (iii) their birth year (recoded as age; four impossible answers to this question were recoded as missing values),
- (iv) their race (coded into two dummy variables: Black (yes=1, no =0) and Hispanic (yes=1, no =0), Other Ethnicity (including missing values; yes=1, no=0) so that each of these ethnicities were contrasted with Whites in the analyses),
- (v) their education (on an 8 point ordinal scale from 1= “less than high school” to 8 = “professional degree (JD,MD)”),
- (vi) their income (on a 9 point ordinal scale from 1= “below \$20,000” to 9= “\$90,000 or more”),
- (vii) their political affiliation (coded into two dummy variables: Democrat (yes=1, no=0), Independent (yes=1, no=0), Other Political Affiliation (including missing values; yes=1, no=0) so that each of these groups were contrasted with Republicans in the analyses),
- (viii) how often they “attend religious worship services” (on a 7 point ordinal scale from 1= “once a year or less” to 7= “once a day or more”), and
- (ix) the way they “decide how much to leave as a tip” (on a nominal scale with the following options: A = “I decide on some dollar amount without calculating a

percentage of the bill,” B = “I always calculate the same standard percentage of the bill and leave that amount,” C = “I calculate some standard percentage of the bill and then adjust that dollar and cents amount up or down depending on the circumstances,” D = “I decide what percent of the bill to tip under the circumstances, calculate what that percentage amounts to in dollars and cents, and leave that amount (or very close to it),” and E = “Other”).

4.2 Results

The data were analyzed with a repeated measures general linear model in which tip amount was the dependent variable, service quality was a within-subjects factor, and worked for tips, conscientiousness, agreeableness, age, sex, Black, Hispanic, education, income, Democrat, Independent/Tea-Party/other, and bill size were between subjects covariates and moderators of service effects (see Tables 4 and 5). This analysis produced significant main effects for service ($F(2,1342) = 3.93, p < .03$), worked for tips ($F(1, 671) = 7.49, p < .007$), Black ($F(1, 671) = 13.19, p < .001$), Hispanic ($F(1, 671) = 13.17, P < .001$), age ($F(1, 671) = 10.36, p < .002$) and bill size ($F(1, 671) = 282.77, p < .001$). Tips increased with service, experience working for tips, and bill size and decreased with age (see Tables 6 - 8). In addition, Blacks and Hispanics tipped less than Whites (see Tables 6 – 8). All these effects are consistent with previous research (see Lynn, 2006).

More importantly for our purposes, service interacted significantly with age ($F(2, 1342) = 5.84, p < .004$), Independent ($F(2, 1342) = 3.88, p < .03$), customer sex ($F(2, 1342) = 2.62, p < .07$) and bill size ($F(2, 1342) = 58.51, p < .001$). Figure 3 displays the service by age interaction. Although the graph shows a median split on age, the actual analysis treated it as a continuous measure. What is clear from the graph, as well as

from separate regression analyses for each level of service (see Tables 6 – 8), is that tips decline with age more when service is unusually good and bad than when service is average (B 's = $-.03$ and $-.02$ vs $-.01$). This means that older consumers are more likely than younger consumers to punish bad service with small tips (compared to those they give for average service) but less likely to reward unusually good service with large tips (compared to those they give for average service).

This finding is superficially different from that reported by Lynn and Katz (forthcoming), who found a negative effect of age on tips when service is bad, but not when service is good. However, it is possible that respondents in Lynn and Katz's survey interpreted good service the same way our respondents interpreted average service since the average consumer rating of service is very positive (see Lynn, 2000). If respondents in Lynn and Katz's did interpret "good service" as normal or average, then the results of the two studies are consistent in finding negative effect of age under bad service but not under average/normal service. Given research showing that older consumers are also less likely than younger consumers to be concerned with impressing servers or tipping for self-presentational reasons (Lynn, 2009), this finding makes sense because punishing bad service with lower tips risks the server's disapproval and older consumers should be less concerned about this risk than young ones.

Our study goes beyond Lynn and Katz's (forthcoming) study in asking about tips when service is "unusually good." Thus, our finding that tips decline with age under this condition is new. Note that the young and old both reward good service with larger tips, but that the increase is larger for younger tippers (see Figure 3). Since younger tippers are more concerned than older consumers about self-presentational motives for tipping

(Lynn, 2009), it is possible that they simply exaggerated their claims about the extent to which they would reward good service in order to look good. To rule out this possibility, future research needs to test the age by service interaction using actual rather than just self-reported tip amounts.

Figure 4 displays the service by Independent interaction, which indicates that those who describe themselves as political independents vary their tips with service quality more than do Republicans. Since Independents tend to be less consistently conservative than Republicans, this finding goes against our theoretical expectation that conservatives (who favor equity over equality based distributions of resources) would tip based on service more than liberals (who favor equality over equity based distributions of resources). We could come up with no convincing theoretical explanation for the stronger service-tipping relationship among political independents than among Republicans, so this interaction may be a Type-II error. It needs to be replicated before much is made of it.

Figure 5 displays the service by customer sex interaction. Although only marginally significant using a two-tailed test, we had a theoretically based expectation about the direction of the effect, so a one-tailed test is appropriate. Using a one-tailed test, the sex by service interaction was significant ($p < .05$). As expected, the tips of men varied with service more than did the tips of women (see Figure 3). This finding is opposite of that in Study 1, but is consistent with previous research finding that men more than women prefer equity or merit based distributions of resources (Austin and McGuinn, 1977; Dickinson and Tiefenthaler, 2002).

Figure 6 displays the service by bill size interaction, which indicates that tips increase with service more strongly the larger the bill size. This effect is consistent with

relative thinking theory (Azar, 2007c). According to this theory, people consider relative differences between prices rather than absolute differences when making economic decisions. As discussed previously, some might argue that relative thinking in tipping contexts is caused by a situation specific social norm that calls for tipping a percentage of the bill rather than by a generalized way of thinking. However, the restaurant tipping norm only requires that the tip fall within a range of 15 to 20 percent of the bill; it does not require people to think about service-based adjustments to their tips in percentage terms. In fact, only 13 percent of our respondents said they select and leave specific tip percentages based on the circumstances. Thirty four percent of the respondents in this study indicated that they calculate a standard percentage of the bill and then adjust that dollar and cent amount up or down depending on the circumstances and another 35 percent indicated that they decide on dollar and cent tip amounts without ever calculating a percentage of the bill. Furthermore, when we confined our analyses to these latter two groups of respondents, we replicated the service by bill size interaction (B 's for bill size under good, average and bad service = .14, .11, and .07 respectively; F-test of interaction $(2, 912) = 29.08, p < .001$). People who think about tipping in terms of dollars and cents reward service more when their bills are larger. Thus, the service by bill size interaction is attributable to a generalized tendency toward relative thinking rather than a context specific, norm driven tendency to choose and leave a specific tip percentage based on service.

5. Discussion

Tipping is supposed to be a reward for service, so tip amounts should and do increase with customers' perceptions of service quality (Azar, 2009; Lynn and McCall, 2000). Although isolated findings from previous research suggested that this relationship may be stronger on weekdays than weekends (Conlin, Lynn and O'Donoghue, 2003), for dinner meals than lunch meals (Lynn and Simons, 2000), for waiters than waitresses (Lynn and Simons, 2000), for white servers than black servers (Lynn, Sturman, Ganley, Adams, Douglas and McNeil, 2008), among those who attend religious services less frequently (Lynn and Katz, forthcoming), and among Asian and Hispanic consumers than White consumers (Lynn and Thomas-Haysbert, 2003), the current studies failed to replicate these interaction effects. In addition, several potential moderators of the service-tipping relationship tested here for the first time – customers' hospitality work experience, alcohol consumption, conscientiousness, agreeableness, education and income – also failed to interact significantly with service ratings. Of course, null results could be due to lack of statistical power, so firm conclusions about these potential moderators are not yet possible. Nevertheless, the overall picture to emerge from these studies is that the service-tipping relationship is fairly robust and may not vary in strength as much as the previous literature suggests. Three variables that did moderate the service-tipping relationship in these studies were customer sex, customer age, and bill size. Each is discussed in greater detail below.

Customer sex moderated the effects of service on tipping in both of the current studies, but the direction of the moderation effect was inconsistent. In Study 1, the effects of service were stronger when the customer was female, but in Study 2, the effects of

service were stronger when the customer was male. The latter effect is consistent with and may be attributed to a tendency for men to prefer performance based distributions of rewards more than do women (Austin and McGuinn, 1977; Dickinson and Tiefenthaler, 2002), but the former effect suggests that customer sex may influence tipping in other ways as well. Clearly, the interaction of customer sex and service deserves further investigation in future research.

Another variable that moderated the service-tipping relationship in Study 2 was customer age. Of particular interest was the finding that older consumers were more likely than younger consumers to punish bad service with small tips (compared to those they give for average service). This finding is consistent with that of Lynn and Katz (forthcoming) if respondents in their study interpreted what was described as “good service” as normal or average, as seems likely given the fact that the average consumer rating of restaurant service is very positive (see Lynn, 2000). Given research showing that older consumers are also less likely than younger consumers to be concerned with impressing servers or tipping for self-presentational reasons (Lynn, 2009), it makes sense that older consumers would be more likely to risk server disapproval by punishing bad service with lower tips. This effect was not found in Study 1, but the variance in age was much smaller in that study than in Study 2 (standard deviations = 3.37 vs 16.09 respectively), so this failure to replicate is neither surprising nor informative.

Arguably the most important variable to moderate the service-tipping relationship was bill size. Tip amounts increased with service more strongly the larger the customers’ bill sizes in both Studies 1 and 2. This effect is consistent with relative thinking theory (Azar, 2007c), which posits that people consider relative differences between prices

rather than absolute differences when making economic decisions. Most of the previous evidence supporting relative thinking comes from hypothetical scenarios and a previous “real world” test failed to find evidence for it, leading the authors to suggest that “financial incentives might alleviate relative thinking” (Azar, 2010). Our finding in Study 1 suggests that conclusion was premature - relative thinking does occur in the face of financial incentives in the real world. From a practical perspective, relative thinking in general and our findings in particular mean that servers interested in earning more tips should devote a disproportionate share of their selling and service efforts to those dining parties they know or expect to have larger bills, because the marginal return on those efforts will be greater the larger the bill size.

Although not the primary focus of this paper, we also found that tip amounts after controlling for bill size increased with the amount of time customers spent on the meal occasion and that this increase was itself larger the smaller the dining parties’ bill sizes. This is the first study that we know of to test and observe these effects. They are important because they suggest that consumers think about and voluntarily compensate servers for the opportunity costs that their lingering imposes on servers. Of course, it is not clear that this compensation matches the true value of the lost opportunity to seat and server other customers, but it should help to make servers more tolerant of customers who take their time eating and leaving.

In conclusion, tips are supposed to be a reward for service. Consistent with this function, we found that restaurant tip amounts increased with perceived service quality and that this relationship was robust across meal type, day of week, sex and race of server as well as customers’ alcohol consumption, education, income, race, worship frequency,

and hospitality work experience. However, service quality did have a bigger effect for parties with large bills than for those with smaller bills. In addition to providing evidence for relative thinking in the face of real world financial incentives, this finding suggests that servers interested in earning larger tips should devote a disproportionate share of their selling and service efforts to those dining parties they know or expect to have larger bills. Overall, these and other findings of the study suggest that although tipping is not “rational” in the economic sense, it is orderly and understandable from a psychological perspective. Hopefully, this paper will encourage more economists to adopt that perspective when they study this and other topics.

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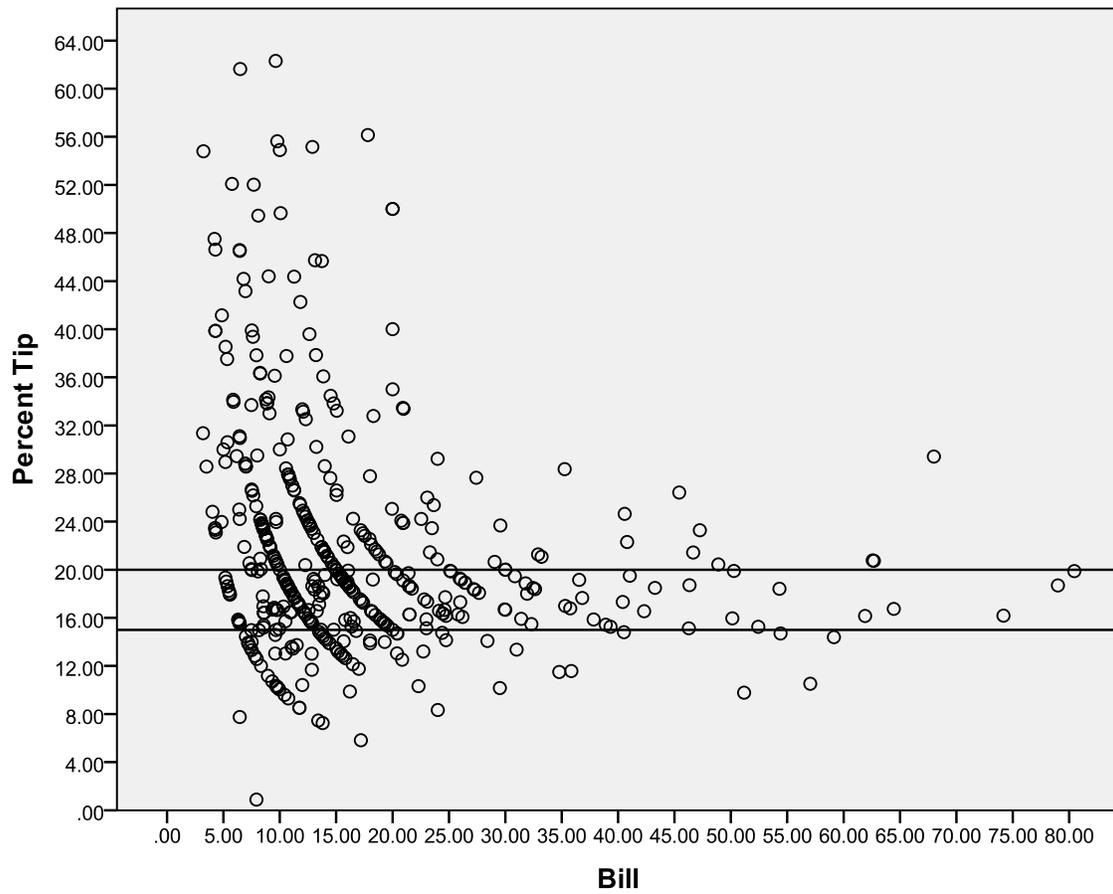


Figure 1. Scatter plot of the relationship between percent tip and bill size (with reference lines showing 5 and 20 percent tips).

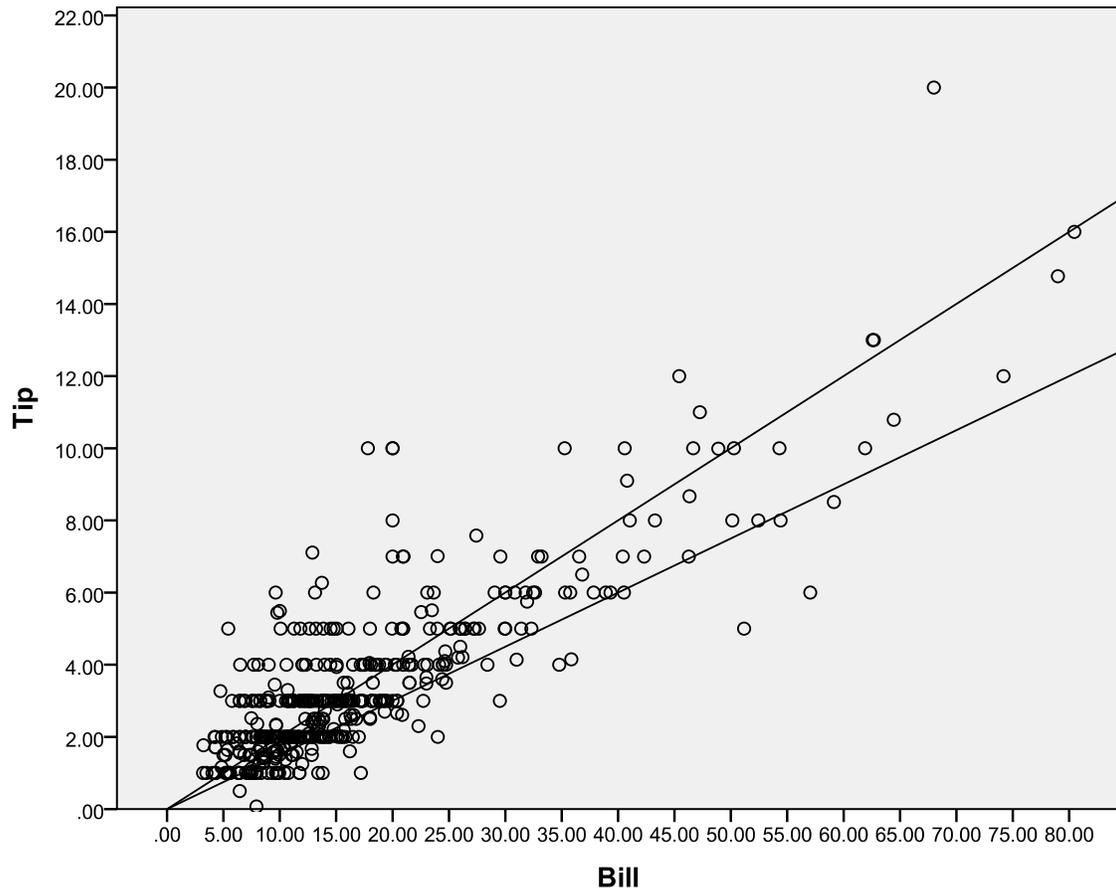
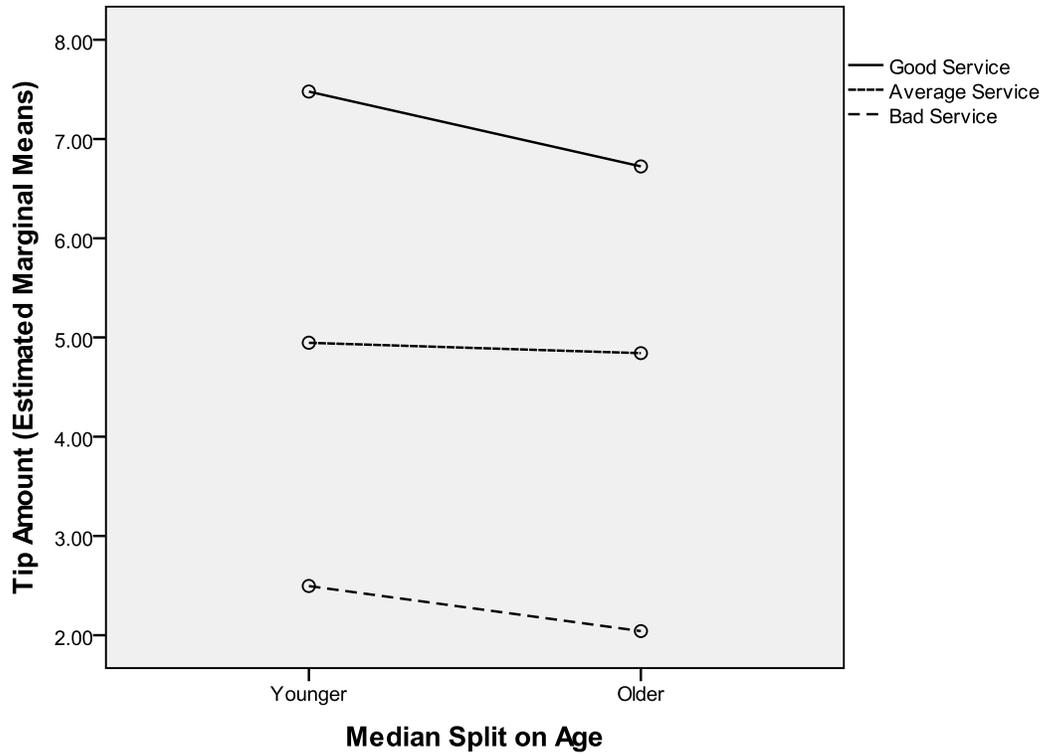
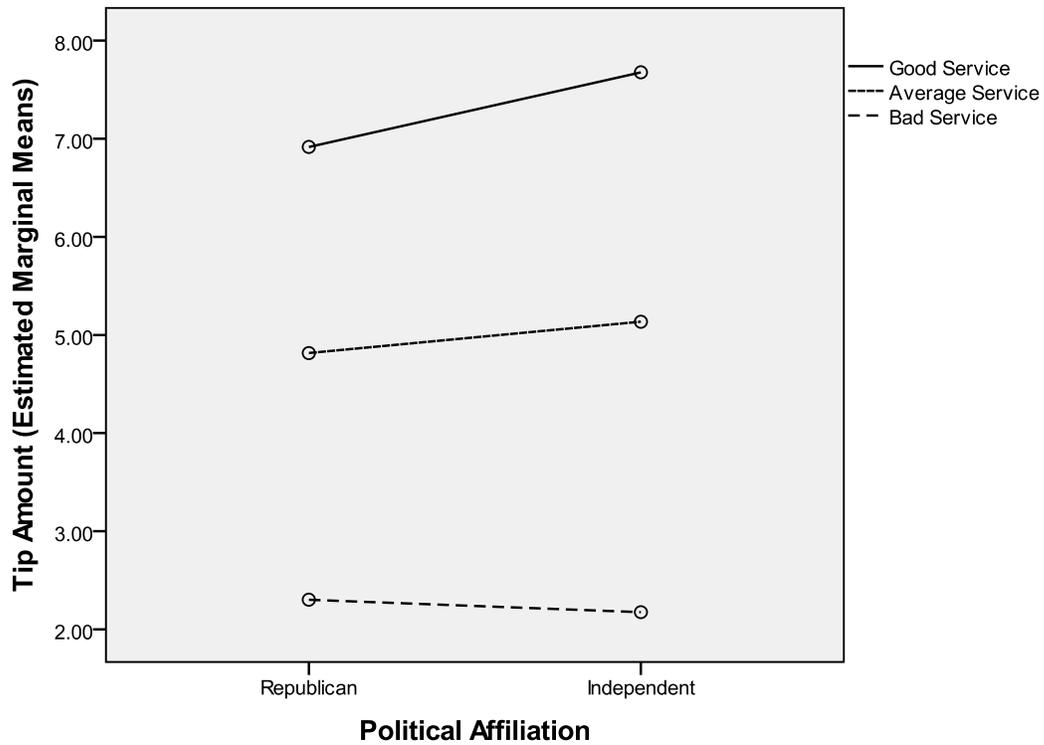


Figure 2. Scatter plot of the relationship between tip amount and bill size (with reference lines showing 5 and 20 percent tips).



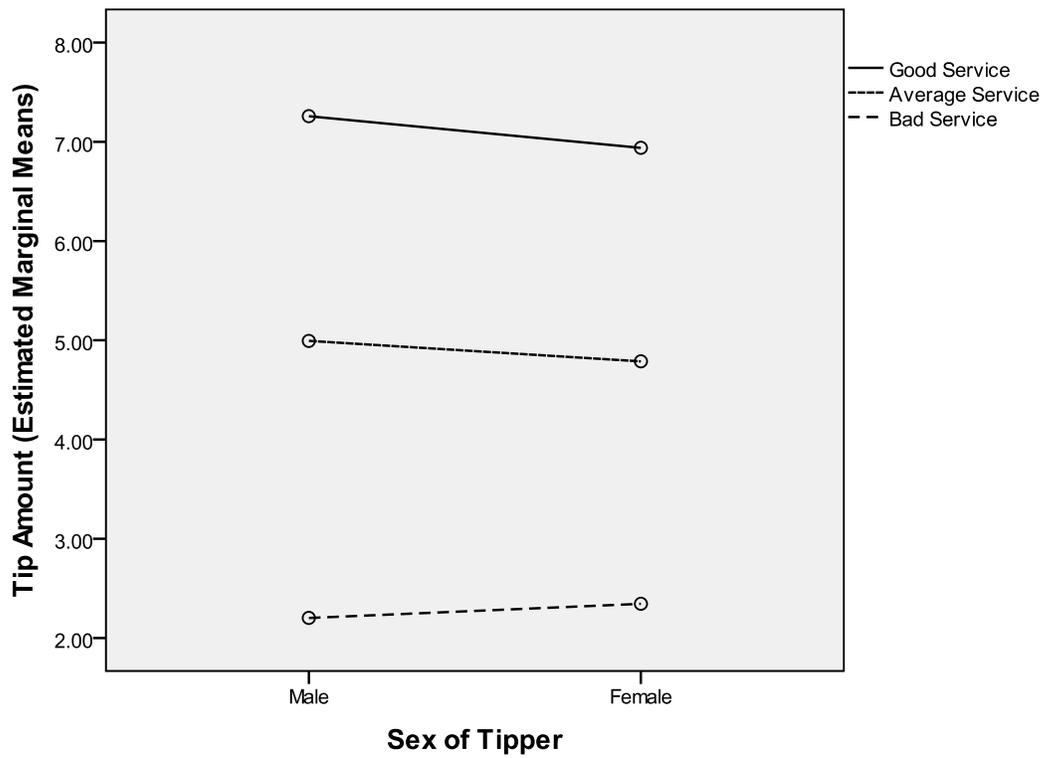
Covariates appearing in the model are evaluated at the following values: youworkedtips = .34, C = 5.78, A = 5.20, sex = 1.48, black = .2475, hispanic = .2518, othrace = .0393, educ = 3.47, income = 3.58, worshipfreq = 2.67, Democrat = .4556, Indep = .2489, OthPol = .0990, bill = 33.7365

Figure 3. Depiction of the service by age interaction effect on tip amounts.



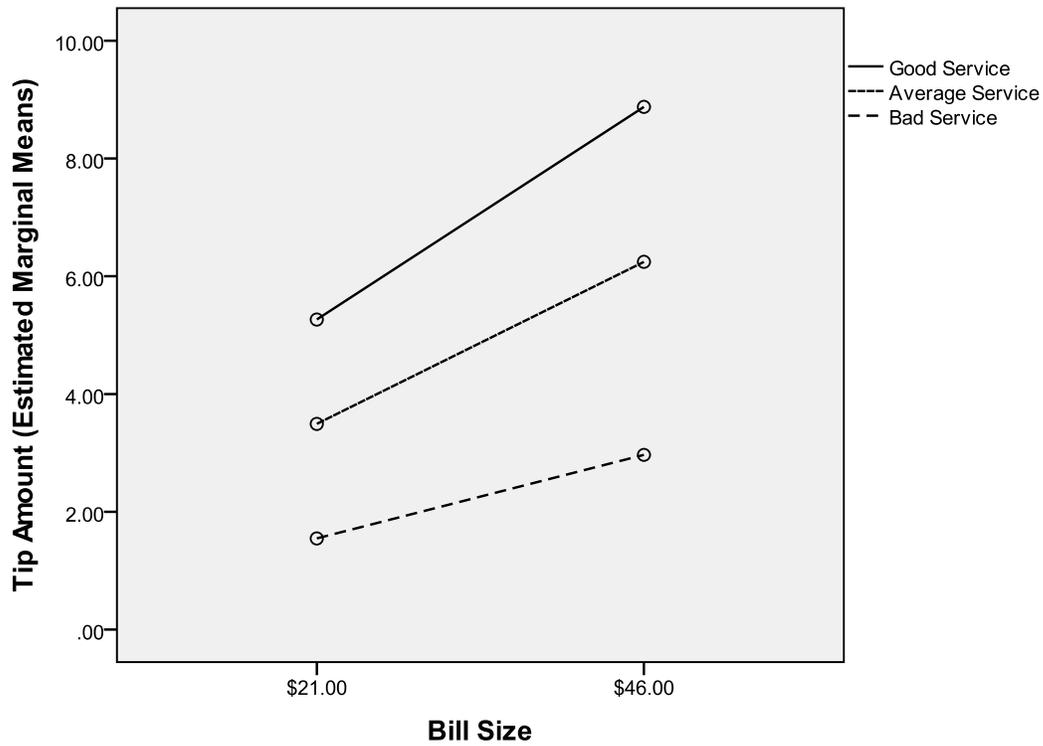
Covariates appearing in the model are evaluated at the following values: youworkedtips = .34, C = 5.78, A = 5.20, sex = 1.48, black = .2475, hispanic = .2518, othrace = .0393, educ = 3.47, income = 3.58, worshipfreq = 2.67, Democrat = .4556, bill = 33.7365, age = 42.9767, OthPol = .0990

Figure 4. Depiction of the service by political affiliation interaction effect on tip amounts.



Covariates appearing in the model are evaluated at the following values: youworkedtips = .34, C = 5.78, A = 5.20, black = .2475, hispanic = .2518, othrace = .0393, educ = 3.47, income = 3.58, worshipfreq = 2.67, Democrat = .4556, age = 42.9767, OthPol = .0990, Indep = .2489, bill = 33.7365

Figure 5. Depiction of the service by customer sex interaction effect on tip amounts.



Covariates appearing in the model are evaluated at the following values: youworkedtips = .34, C = 5.78, A = 5.20, sex = 1.48, black = .2475, hispanic = .2518, othrace = .0393, educ = 3.47, income = 3.58, worshipfreq = 2.67, Democrat = .4556, age = 42.9767, OthPol = .0990, Indep = .2489

Figure 6. Depiction of the service by bill size interaction effect on tip amounts.

Table 1. Descriptive statistics for Study 1.

	N	Minimum	Maximum	Mean	Std. Deviation
<u>Customer Level Variables</u>					
Sex (M =1, F =2)	122	1	2	1.68	.468
Age	122	18	46	21.57	3.367
Race	122	0	1	.76	.42743
(W = 1, Other =0)					
Hospitality	122	0	1	.75	.432
Experience					
Number Dining	122	1	6	4.53	1.34
Experiences					
<u>Dining Experience Level Variables</u>					
Tip	466	.07	36.00	3.7856	3.67293
Bill	466	3.19	196.27	19.0056	20.31928
Table-Time	466	15.00	310.00	75.2597	35.46380
Dinner (Y/N)	466	.00	1.00	.6052	.48934
Alcohol (Y/N)	466	.00	1.00	.2296	.42104
Dessert (Y/N)	466	.00	1.00	.0622	.24184
Weekend (Y/N)	466	.00	1.00	.5343	.49936
Server Sex	466	1.00	2.00	1.6609	.47390
(M=1, F=2)					
Server Race	466	.00	1.00	.7361	.44125
(W =1, Other = 0)					
Service Index	466	1.60	10.00	7.3372	1.69961
Food Index	466	2.25	10.00	8.1970	1.35327
Room Index	466	2.00	10.00	7.5002	1.44803

Table 2. Tests of effects on tip amount in Study 1 (with 466 observations from 122 subjects).

Parameter	Model 1		Model 2		Model 3	
	Robust		Robust		Robust	
	B	Std. Error	B	Std. Error	B	Std. Error
Intercept	-1.03	.70	-.73	1.05	-.78	.72
Bill	.15***	.01	.11***	.01	.15***	.02
Bill Squared	.00006	.00007	.0001**	.00004	.0002***	.00006
Table-Time	.01***	.002	.01	.001	.01***	.002
Dinner	.03	.12	-.08	.51	.01	.11
Alcohol	.40	.22	-.82	.58	.31	.22
Dessert	.26	.28	.17	.27	.26	.26
Weekend	-.09	.12	.10	.55	-.15	.11
Server Sex	-.01	.10	.26	.51	.07	.09
Server Race	.09	.14	.29	.50	.10	.13
Service	.21***	.04	-.58	1.10	-.13	.14
Food	.03	.06	.03	.06	.03	.06
Room	-.07	.05	-.07	.05	-.08	.05
Hospitality Experience X Service			-.03	.12		
Customer Sex X Service			.18*	.09	.14	.08
Customer Race X Service			.13	.08		
Customer Age X Service			.02	.05		
Weekend X Service			-.03	.08		
Server Sex X Service			-.02	.07		
Server Race X Service			-.03	.07		
Dinner X Service			.02	.07		
Alcohol X Service			.15	.09		
Bill X Service			.01**	.001	.004***	.001
Bill X Table-Time					-.0004**	.0001
R ² within	.90		.91		.91	
R ² between	.87		.82		.85	
R ² overall	.87		.85		.86	

* p < .05, ** p < .01, *** p < .001

Table 3. Descriptive Statistics for Study 2.

	N	Minimum	Maximum	Mean	Std. Deviation
Worked for tips	687	no = 0	yes = 1	.34	.473
Conscientiousness	687	1	7	5.78	1.435
Agreeableness	687	1	7	5.20	1.546
Age	687	10.00	90.00	42.9767	16.09065
Sex	687	male = 1	female = 2	1.48	.500
Black	687	no = .00	yes = 1.00	.2475	.43185
Hispanic	687	no = .00	yes = 1.00	.2518	.43437
Other race	687	no = .00	yes = 1.00	.0393	.19445
Education	687	1	8	3.47	1.392
Income	687	1	9	3.58	2.388
Democrat	687	no = .00	yes = 1.00	.4556	.49839
Independent	687	no = .00	yes = 1.00	.2489	.43270
Other Political	687	no = .00	yes = 1.00	.0990	.29885
Worship frequency	687	1	7	2.67	1.876
Tips for good service	687	.00	25.00	7.1052	3.61557
Tips for average service	687	.00	23.00	4.8949	2.45256
Tips for bad service	687	.00	40.00	2.2703	2.55563
I decide on some dollar amount w/out calculating a percentage of the bill.	685	no = .00	yes = 1.00	.3460	.47604
I always calculate the same standard percentage of the bill and leave that amount.	685	no = .00	yes = 1.00	.1007	.30119
I calculate some standard percentage of the bill and then adjust that dollar and cents amount up or down depending on the circumstances.	685	no = .00	yes = 1.00	.3431	.47508
I decide what percent of the bill to tip under the circumstances, calculate what that percentage amounts to in dollars and cents, and leave that amount (or very close to it).	685	no = .00	yes = 1.00	.1343	.34123
Valid N (listwise)	685				

Table 4. Tests of Within-Subjects Effects on Tip Amount in Study 2.

Source	Type III Sum of				
	Squares	df	Mean Square	F	Sig.
Service	27.612	2	13.806	3.926	.020
Service X Worked for tips	11.208	2	5.604	1.594	.204
Service X Conscientiousness	6.147	2	3.074	.874	.417
Service X Agreeableness	3.844	2	1.922	.547	.579
Service X Age	41.082	2	20.541	5.841	.003
Service X Sex	18.414	2	9.207	2.618	.073
Service X Black	9.690	2	4.845	1.378	.252
Service X Hispanic	13.411	2	6.705	1.907	.149
Service X Other race	13.229	2	6.615	1.881	.153
Service X Education	3.334	2	1.667	.474	.623
Service X Income	1.909	2	.955	.271	.762
Service X Worship frequency	3.541	2	1.771	.504	.605
Service X Democrat	13.036	2	6.518	1.853	.157
Service X Independent	27.275	2	13.638	3.878	.021
Service X Other Political	14.422	2	7.211	2.051	.129
Service X Bill	411.508	2	205.754	58.510	.000
Error(service)	4719.244	1342	3.517		

Table 5. Tests of Between-Subjects Effects on Tip Amount in Study 2.

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Intercept	124.804	1	124.804	10.359	.001
Worked for tips	90.251	1	90.251	7.491	.006
Conscientiousness	.042	1	.042	.003	.953
Agreeableness	2.650	1	2.650	.220	.639
Age	124.770	1	124.770	10.356	.001
Sex	7.781	1	7.781	.646	.422
Black	158.919	1	158.919	13.191	.000
Hispanic	158.723	1	158.723	13.174	.000
Other race	12.543	1	12.543	1.041	.308
Education	.802	1	.802	.067	.796
Income	40.669	1	40.669	3.376	.067
Worship Frequency	32.473	1	32.473	2.695	.101
Democrat	40.194	1	40.194	3.336	.068
Independent	20.975	1	20.975	1.741	.187
Other Political	1.977	1	1.977	.164	.686
Bill	3406.763	1	3406.763	282.769	.000
Error	8084.107	671	12.048		

Table 6. Tests of effects on tip amount when service is good in Study 2.

Parameter	B	Std. Error	t	Sig.
Intercept	3.163	.903	3.504	.000
Worked for tips	.657	.252	2.609	.009
Conscientiousness	.054	.089	.608	.544
Agreeableness	-.013	.082	-.161	.872
Age	-.029	.008	-3.624	.000
Sex	-.319	.242	-1.318	.188
Black	-.580	.328	-1.771	.077
Hispanic	-.991	.309	-3.206	.001
Other race	.101	.619	.163	.871
Education	-.002	.092	-.024	.981
Income	.082	.055	1.489	.137
Worship Frequency	-.052	.065	-.798	.425
Democrat	.697	.349	2.000	.046
Independent	.760	.367	2.072	.039
Other Political	.423	.464	.910	.363
Bill	.144	.009	15.360	.000
R²	.30			

Table 7. Tests of effects on tip amount when service is average in Study 2.

Parameter	B	Std. Error	t	Sig.
Intercept	1.427	.582	2.451	.014
Worked for tips	.432	.163	2.656	.008
Conscientiousness	-.021	.057	-.362	.717
Agreeableness	.028	.053	.526	.599
Age	-.005	.005	-1.019	.309
Sex	-.206	.156	-1.321	.187
Black	-.721	.211	-3.411	.001
Hispanic	-.750	.199	-3.761	.000
Other race	-.403	.400	-1.008	.314
Education	.060	.059	1.014	.311
Income	.070	.035	1.968	.050
Worship Frequency	-.102	.042	-2.448	.015
Democrat	.441	.225	1.960	.050
Independent	.320	.237	1.351	.177
Other Political	.290	.300	.967	.334
Bill	.110	.006	18.143	.000
R^2	.37			

Table 8. Tests of effects on tip amount when service is bad in Study 2.

Parameter	B	Std. Error	t	Sig.
Intercept	1.129	.716	1.576	.115
Worked for tips	.268	.200	1.342	.180
Conscientiousness	-.044	.071	-.617	.537
Agreeableness	.061	.065	.939	.348
Age	-.016	.006	-2.588	.010
Sex	.142	.192	.741	.459
Black	-1.041	.260	-4.004	.000
Hispanic	-.468	.245	-1.906	.057
Other race	-.942	.492	-1.917	.056
Education	-.011	.073	-.154	.877
Income	.047	.044	1.082	.280
Worship Frequency	-.055	.051	-1.077	.282
Democrat	.116	.277	.418	.676
Independent	-.127	.291	-.437	.663
Other Political	-.342	.369	-.928	.354
Bill	.057	.007	7.609	.000
R^2	.12			