Economic games designed to study bargaining and negotiation (e.g., ultimatum game, dictator game) are well suited for understanding the boundary conditions around which people behave in a self-interested or other-oriented (i.e., fair) manner. Research has yielded consistent findings that perceived fairness violates rules of rational economic theory (Güth, Schmittbereger, & Schwarze, 1982). A common bargaining game, the ultimatum game, relies on a one-shot situation based on a windfall (i.e., a pot of money) as the source of bargaining resources and proposers tend to offer a 50–50 split of the pot to responders (Güth et al., 1982; Roth, 1995). The finding that most proposers and responders view a 50–50 split as the fairest offer has been interpreted to mean that allocations in the ultimatum game are governed by egalitarian fairness norms (Fiddick & Cummins, 2007; Handgraaf, van Dijk, & De Cremer, 2003; van Dijk & Vermunt, 2000). Consequently, equity theory (e.g., Adams, 1965; Walster, Walster, & Berscheid, 1978), the equality rule (Handgraaf et al., 2003; van Dijk & Vermunt, 2000), distributive justice (Tömbblom, 1992), and social utility model (Blount, 1995; Loewenstein, Thompson, & Bazerman, 1989; Messick & Sentis, 1983) have all been used to explain the contradictions to rational economic theory. The assumption is that the proposer is driven by social norms of fairness and out of fear that a lower offer will be rejected (Kahneman, Knetsch, & Thaler, 1986). Thus, based on norms of reciprocity, the proposer gives a generous offer with the anticipation that the responder will in turn agree to the split. Responders tend to reject offers that are less than 30% of the pot (Camerer & Fehr, 2006; Handgraaf et al., 2003). It is assumed that respondents deem these offers to be unfair and are willing to sacrifice their own gains to punish unfair proposers.

Because of the overwhelming evidence that bargaining is governed by fairness norms, most of the research in the past 30 years on ultimatum bargaining has focused on examining the boundary conditions around which proposers would act self-interested (as predicted by rational economic theory) versus act in an other-oriented manner (as predicted by fairness theories). The extant state of the literature would suggest that individuals are driven by self-interest to a certain extent (e.g., Fellner & Güth, 2003; Kagel, Kim, & Moser, 1996; van Dijk, De Cremer, & Handgraaf, 2004). However, they are bounded by social norms for fairness with individual differences influencing the relative weights placed on self-interest and fairness motives in bargaining. Although emotions, social value orientation, and other individual differences are important for understanding the antecedents of fair bargaining (e.g., Stephen & Pham, 2008; van Dijk et al., 2004), there is some evidence that fairness is context-specific or relationship-specific, varying with the information presented or the domain of the social interaction (e.g., Fiddick & Cummins, 2007). A few recent studies have even altered the context of bargaining games (e.g., dictator, public goods) to reveal that transactions are affected if proposers and responders are given property rights to the pot of money (Cherry, Frykblom, & Shogren, 2002; Leliveld, van Dijk, & van Beest, 2008; List, 2007; Oxoby & Spraggon, 2008; Spraggon & Oxoby, 2009; van Dijk et al., 2004). Additionally, changing the bargaining situation evokes different social norms which in turn influence fairness perceptions (Gamliel & Peer, 2006; Konow, 2003; Leliveld et al., 2008; March, 1994; Messick, 1999).

Bargaining games, such as the ultimatum game, are often used to make generalizations to real-world situations where a commodity or service is present (e.g., Levitt & List, 2007; Ruffle, 1998). Although the original ultimatum game is a useful building block for understanding complex negotiated transactions because of its simple structure (e.g., Camerer & Thaler, 1995), it is limited in terms of understanding the
nature and source of fairness perceptions. Some researchers (e.g., Levitt & List, 2007; List, 2007) suggest that the behavior of participants in motivated bargaining games should be influenced by the properties of the situation or context, in addition to personal preferences. The ultimatum game represents the simplest take-it-or-leave-it transaction designed to isolate the behavior of participants, ignoring contextual factors. We contend that the ultimatum bargaining paradigm is not always transferrable to business contexts because people rarely begin negotiations with a windfall in business contexts, and instead, the sharing or exchange of resources is based on some other valued cost basis/reference point (e.g., investment of time and effort, work product). Accordingly, the ultimatum game is a special case because it is based on a windfall; however, most market transactions typically imply that some effort was expended or prior cost was invested that may not translate to egalitarian norms of fairness often observed in bargaining games. We propose that the perceived amount of effort exerted provides a guide for processing and evaluating expectations of fairness often manifested in bargaining situations. The type of relationship evoked by ultimatum games is more akin to communal sharing (proposed by Fiske, 1992) because of the lack of effort exerted to obtain the windfall; therefore, people should act as if it were a non-monetary exchange relationship where resources are allocated more evenly amongst participants (cf., DeVoe & Iyengar, 2010). In contrast, typical bargaining situations appear to rely on market-pricing relationships where the amount of effort is factored into the pricing (Heyman & Ariely, 2004). Thus, accounting for effort should provide insights regarding fairness and allocation of resources in different bargaining situations.

Effort

It has been well established that people tend to take into consideration the amount of effort exerted and will alter their perceptions to match the effort associated with a task or resources (Aronson & Mills, 1959; Festinger & Carlsmith, 1959). Oftentimes, effort is used as a guide for processing subsequent information. In the classic study conducted by Aronson and Mills (1959) on effort justification, participants who exerted more effort to join a group rated the group discussion more favorably than participants who exerted little or no effort to join the group. Effort justification reduces the dissonance created when effort expended exceeds the value of the outcome. However, Kruger, Wirtz, Van Boven, and Altermatt (2004) argued that effort can affect judgments via another route—the effort heuristic. Specifically, they argued that the more effort invested in an object, the higher the perceived quality. For example, when another person is believed to have exerted a great deal of effort, people rated the person’s artistic work (e.g., paintings, poems) as superior to the work of those individuals who exerted very little effort (Kruger et al., 2004). In addition, high-effort paintings were perceived as having greater monetary value than low-effort paintings. This effect is pronounced when effort information is accessible prior to making the judgment; however, invoking other information (i.e., talent) can sometimes diminish the effect (Cho & Schwarz, 2008). Moreover, effort consideration extends beyond direct judgments and evaluations to affect motivation and goal inference (Dik & Aarts, 2007, 2008). Thus, amount of perceived effort expended has been posited to affect how people process and evaluate judgments of value and subsequent actions.

Consequently, if people place a value on the amount of effort expended by themselves and others, then effort should also factor into evaluations of fairness in bargaining situations. Specifically, expectations of fairness (to share, give, or receive) should be influenced by whether the monetary transaction is based on a windfall (no effort) or earned through effort (cf. Arkes et al., 1994; Kahneman et al., 1986), which in turn should determine the reference for judging fairness in negotiations. We contend that whether the resource is earned (via effort) or based on a windfall naturally evokes assessments regarding the amount of effort exerted, which in turn impacts how one decides to spend or share a given resource. For example, Epley, Mak, and Idson (2006) demonstrated that people spent more money when the federal government returned tax dollars framed as a stimulus package rather than as a tax rebate. One can view these findings in terms of effort exerted. In the case of the stimulus package, tax money is considered to be “free” money with little or no effort exerted; however, a rebate (from the same tax pool) connotes that the gain is a return of money that was earned through past effort. DeVoe and Iyengar (2010) revealed that people are unwilling to endorse the egalitarian sharing of a cash monetary gain when the gain was based on prior sales performance (i.e., implied effort). Ruffle (1998) found that allocators in the dictator game offered more money to recipients who answered enough trivia questions to earn the endowment compared with a coin toss. These results were attributed to equity theory such that dictators “rewarded” those who had earned the money. We argue that perceived effort (whether implied or explicit) is one of the theoretical mechanisms underlying the distribution of resources in bargaining and negotiation. Thus, we propose that to better understand how fairness perceptions are developed for monetary transactions in motivated bargaining, the effort required to procure the resource is fundamental to dictating what is fair in the allocation of said resource.

Overview of experiments

To examine how effort might differentially impact fairness, we contrasted the typical ultimatum game with two additional versions (willingness to pay: WTP and willingness to accept: WTA) for a service. Because the ultimatum game is not based on a typical economic exchange relationship, the two newer versions mimic some of the properties of the original game but are not isomorphic to the original game. We held constant the amount of money across all three games and adapted the text in the WTA and WTP games to correspond to the bargaining elements of the ultimatum game. The primary difference between the ultimatum and the WTA/WTP games, regardless of whether the participant was a buyer or seller, is the implication that money exchanged was earned (via effort) rather than based on a
windfall (as in the ultimatum game). It is important to note that we focused on service rather than a commodity because of the variability of additional costs associated with a commodity (e.g., wholesale cost, shipping), which are open to interpretation. In contrast to previous studies (e.g., Cherry et al., 2002; Leliveld et al., 2008; Oxoby & Spraggon, 2008), we also did not manipulate property rights by endowing participants with all or a portion of the pot of money. Instead, we wanted to isolate perceived effort and remove any potential confounds with the various costs associated with selling and buying commodities or endowments derived from property rights. Finally, focusing only on effort would leave no doubt as to the source of perceived fairness (i.e., effort).

Three experiments were conducted to determine how effort affected fairness and resource distribution in bargaining games. We used a within-subjects design to capture the extent to which participants were sensitive to effort expenditure and its influence on fairness in the distribution of resources. If participants are sensitive to windfalls versus earned monetary transactions, then perceptions of fairness should result in differential allocation of money per situation. In all experiments, participants completed a single version of each game (ultimatum, WTP, and WTA). In Experiment 1, we directly examined fairness by contrasting whether what people offer is what they consider to be a “fair” amount. In Experiment 2, we directly measured perceptions of effort to further validate that perceived effort is differentially factored into the amounts offered in the games. In Experiment 3, we manipulated effort by having participants exert effort before proceeding to the bargaining games to determine whether indirect effort can also affect bargaining situations.

EXPERIMENT 1

Consistent with an effort explanation, we predicted that in the WTA game, the amount of money a person is willing to accept in exchange for a valued service will exceed the amount of money proposed in the ultimatum game. Accordingly, when a service or money is due to effort, the reference for such a situation is the maximum perceived value of effort expenditure for the service or money, and any decrease from this value will be construed as a loss. Conversely, money is viewed as a gain from zero in the ultimatum game. Based on the effort heuristic, the same rationale should hold when people are paying for services provided by others because the proposer will recognize the effort involved in the service and that the other person “deserved” or “earned” it when compared with offers from a windfall. Therefore, we predicted that amounts offered in the WTP game will also exceed amounts extended in the ultimatum game.

In comparing amounts offered in the two business games (WTP and WTA), we contend that a person is more apt to value their own effort more than another’s effort. People are willing to accept more money for a commodity (e.g., pen, mug) than they are willing to pay for the same commodity (Horowitz & McConnell, 2002; Thaler, 1980). Money or assets owned by an individual are valued more highly than money or assets not part of their possession (Kahneman, Knetsch, & Thaler, 1990; Knetsch & Sindén, 1984). We anticipated that this tendency would extend to effort expended for a service such that participants will expect to receive more money in the WTA game than they are willing to distribute in the WTP game, for the same service.

Given that perceived fairness is an important determinant of decision outcomes in the ultimatum game (e.g., Handgraaf, van Dijk, Wilke, & Vermunt, 2004), it was necessary that we investigated the extent to which perceptions of fairness and amounts offered in each game were demonstrably linked. Half of the participants were asked what they thought was a “fair” amount for each game, whereas the other half were asked to make an offer (with no indication as to whether or not they felt that offer was fair). If participants offered what they consider to be a fair amount, then we should see no differences between the two conditions; any differences would be because of the type of game (implied effort associated with each game). Furthermore, often in real-world negotiations, people have a perceived value (including a minimum and maximum amount) for the commodity or service and try to settle on an offer within this range. To examine this, we asked participants to indicate their minimum and maximum amounts for each game. We anticipated that the amount offered lies between the minimum and maximum offer amounts.

METHOD

Participants and design
One hundred seventy-eight undergraduate students completed the experiment in exchange for extra course credit.

We implemented a mixed factorial design. All participants completed all three games (ultimatum, WTP, and WTA) as a within-subjects factor; however, we randomly assigned them to either the fair (n = 92) or the offer (n = 86) condition for the between-subjects factor. The order of the three games was presented randomly per participant.

Materials and procedure

The experiment was presented on a computer monitor, and participants used the mouse and keyboard for responses. In addition to the ultimatum game, we created two versions where the exchange was framed in terms of buying a service (WTP) or selling a service (WTA). We presented the following game for WTP and WTA (presented in italics and in parentheses):

Imagine that you just started a new company (a Web designing company). You can spend up to $1000 for a Web designer to create a Web page for your company. (You can charge up to $1000 to create a Web page for a company.) You task is to determine the amount of money that you are willing to pay (accept) for the Web page keeping in mind that you would prefer to save (earn) as much money as possible while placing a competitive offer. The Web designer (company) has the right to reject your offer. If the Web designer rejects your offer, both of you lose; you do not get a Web page, and the designer loses the opportunity to make
money (you lose the opportunity to make money and the company does not get a Web page). You will now have the opportunity to make an offer to the Web designer (company).

Participants were randomly assigned to the fair or offer condition. In the offer condition, participants were asked to provide an offer: “How much do you offer the other person (Web designer/company)?” However, in the fair condition, participants were asked “What would you consider to be a fair amount to share?” in the ultimatum game or “What would you consider to be a fair amount for this service?” for the WTA and WTP games. After indicating the amount offered, participants then provided their minimum and maximum amounts for each game.

Results and discussion

Figure 1 illustrates the average amounts (offered, minimum, and maximum) for the offer and fair conditions per game. We conducted a mixed factorial analysis of variance (ANOVA) using amount as the dependent variable, game (WTP, WTA, ultimatum), and amount type (minimum, offered, maximum) as within-subjects factors and condition (fair, offer) as the between-subjects factor. Planned contrasts between games for amount offered (WTP versus ultimatum, WTA versus ultimatum, and WTA versus WTP) were conducted using a Bonferroni correction (alpha = .017).

The main effect of condition was not statistically significant which supported our assumption that the amount offered by individuals tends to be what they deem to be a fair amount. A main effect of amount type was observed, $F(2, 175) = 547.81$, $p < .01$, $\eta^2_p = 0.76$. Commensurate with our instructions, values ranged from smallest (minimum) to largest (maximum) for all games supporting the establishment of minimum and maximum amounts centered on the amount offered. More importantly, a significant main effect of game, $F(2, 175) = 122.89$, $p < .01$, $\eta^2_p = 0.41$, revealed differences between the games with the largest amounts extended in the WTA game followed by the WTP game and then the ultimatum game. Planned contrasts (collapsed across offer and fair conditions) revealed that the amounts offered were greater for the business games compared with the ultimatum game (WTP versus ultimatum, $t(177) = 8.59$, $p < .001$, $d = 0.85$; WTA versus ultimatum, $t(177) = 12.11$, $p < .001$, $d = 1.20$). Additionally, people were willing to accept (WTA) more money than they were willing to pay (WTP) for the same service, $t(177) = 4.69$, $p < .001$, $d = 0.23$.

The interaction between amount type and game, $F(4, 173) = 10.56$, $p < .01$, $\eta^2_p = 0.37$, was significant indicating a smaller range between the three offer types in the ultimatum game compared with the two business transaction games. This difference can be interpreted within the context of negotiations for business transactions where individuals often give themselves some negotiating room (e.g., Bazerman, Curhan, Moore, & Valley, 2000). None of the other interactions were statistically significant.

In sum, a consistent pattern emerged indicating that what is offered is generally construed as a fair amount and amount offered lies between the floor (minimum) and the ceiling (maximum) amounts. Notably, the context of the game mattered such that expectations to split evenly a windfall (i.e., ultimatum) are not extended to games where effort has been exerted to render a service (i.e., WTP and WTA). Additionally, the perceived value of one’s own service (WTA) exceeded the service of others (WTP).

EXPERIMENT 2

In Experiment 1, we tested the implicit assumption that effort affects perceptions of fairness that in turn affects monetary distributions. To better capture whether the implicit assumption is explicitly endorsed by people, we directly measured participants’ perceptions of effort associated with each game in Experiment 2. We asked participants to rate to what extent they considered the amount of effort as well as their perceptions regarding the distribution of money for each game. This is a critical aspect of our research because effort is the theoretical explanation for our hypothesized effects. We are not aware of any studies that have directly estimated perceived effort in motivated bargaining. As such, a significant contribution would be to empirically demonstrate that estimates of perceived effort are indeed higher in the context of our WTA and WTP games compared with the ultimatum game.

Furthermore, we examined whether the distribution of resources (i.e., amounts offered) would vary if the person in the situation was their best friend because perceptions of fairness can depend on the person with whom we are negotiating (Halpern, 1997; Sorenson & Waguespack, 2006). There is ample evidence that compared with strangers; friends tend to be less self-interested and more averse to competitive interactions or conflict (e.g., Pinkley, 1990; Shapiro, 1975), and higher offers are extended between buyers and sellers who are friends (e.g., Halpern, 1994, 1997; Mandel, 2006). Friends may signal that service is of higher quality, the transaction involves less risk, or that

Figure 1. Mean (standard error) amounts offered for offer versus fair conditions in Experiment 1 (WTA, willingness to accept; WTP, willingness to pay)
individuals are predisposed to be more satisfied negotiating with friends (e.g., Sorensen & Waguespack, 2006). Researchers (e.g., Halpern, 1997; Mandel, 2006) proposed that higher offers occur when negotiating with friends because of specific “scripts” that guide expectancies and behavior in social contexts. Mandel (2006) explained that the friendship script is best defined by a generosity norm and may be more important than the oft-cited reciprocity or fairness norm typically used to explain ultimatum bargaining results. The generosity norm exerts pressure to regard generous offers as mutually beneficial among friends. Within the context of the present study, we posit that another reason why offers are higher when negotiating with friends is that we value the effort of friends more than we value the effort of others (i.e., stranger). The valuation of effort may very well be the result of a generosity norm whereby participants’ valuation of a friend’s effort takes into account value attributed to the relationship. Namely, participants may sacrifice their own monetary gain in exchange for emotional or social capital. We hypothesized that offers will be higher in the WTP and lower in the WTA games when participants are asked to make an offer to a friend compared with making an offer to a stranger. Negotiating with a friend is yet another contextual variable that could impact perceived effort and fairness.

METHOD
Participants and design
Eighty-two undergraduate students completed the experiment in exchange for extra course credit. We used a within-subjects design where all participants completed each game in a random order.

Materials and procedure
Consider effort. To assess effort, we posed the following question: “To what extent did you consider the amount of effort that went into the game (“Web page” in business games) when making your offer?” Participants responded using the following scale: 1-not at all, 2-very little, 3-somewhat, 4-very much, or 5-an extreme amount.

Fair division. Participants indicated “To what extent did your desire to divide the money fairly play a role in making (“accepting” in WTA) the offer?” using the following scale: 1-none at all, 2-very little, 3-somewhat, 4-very much, or 5-extremely.

Maximizing income. Participants responded to the question: “To what extent did maximizing your own income play a role in making (“accepting” in WTA) the offer?” using the following scale: 1-none at all, 2-very little, 3-somewhat, 4-very much, or 5-extremely.

Outcome versus fairness. Additionally, participants were asked to indicate “What did you think was more important, your own outcome or fairness?” and responded using the following scale: 1-own outcome, 2-fairness, or 3-equally important.

Friend. The last question asked participants to “Imagine that the other person in this situation was your best friend; how much would you offer (accept from) him or her?”

The game descriptions were identical to Experiment 1 (ultimatum, WTP, and WTA games). After reading a game description and indicating the amount offered, participants then responded to the questions indicated above. Participants read one game description and responded to the questions for that game before beginning the next game. The order of games was randomized for each participant.

Results and discussion
Amounts offered
Figure 2 presents the mean amounts per game for stranger (i.e., other person) and friend (i.e., best friend). We conducted a 3 (game: ultimatum, WTA, WTP) × 2 (person: stranger, friend) repeated-measures ANOVA with similar planned contrasts between games for amount offered as Experiment 1.

Inspection of Figure 2 reveals that we replicated the main effect of game, $F(2, 80) = 70.80, \eta_p^2 = 0.41$. Participants offered more in business games than the ultimatum game: WTA, $t(81) = 14.41, p < .0001, d = 2.13$, and WTP, $t(81) = 8.85, p < .001, d = 1.38$, and expected higher amounts in the WTA than they were willing to pay for the same service in the WTP, $t(81) = 5.82, p < .001, d = 0.48$. The interaction of game by person, $F(2, 80) = 29.69, \eta_p^2 = 0.27$, and the main effect of person, $F(1, 81) = 10.27, \eta_p^2 = 0.11$, were statistically significant and reflect that best friend offers differed from stranger offers for the WTA game. Consistent with our predictions, people were willing to accept less from a friend than stranger, $t(81) = 6.74, p < .001, d = 0.67$, indicating willingness to adjust their perception of what is fair to accommodate a pre-existing relationship. However, WTP was not significantly different between the stranger and friend conditions. Mandel (2006) observed the same effect and concluded that the generosity norm is asymmetric in that participants are more willing to accept less money from friends than strangers when selling services; however, offers to buy services did not differ between friends and strangers. The asymmetry results from sellers being more concerned about
generosity norms than buyers. Hence, we observed yet another contextual variable that affects motivated bargaining.

Perceptions
Table 1 presents the means and standard deviations of responses for each question by game. Participants’ responses were significantly different across the different bargaining situations in the predicted direction. Separate repeated-measures ANOVAs conducted for each question revealed a main effect of game for each question, ps < .001 (see Table 1 for corresponding Fs and \( \eta^2_p \)). Planned contrasts between games (WTP versus ultimatum, WTA versus ultimatum, and WTA versus WTP) were conducted using a Bonferroni correction (alpha = .017).

Consider effort. Participants endorsed greater agreement that they considered the amount of effort in the business games compared with the ultimatum game: effort perceptions differed between WTP and ultimatum, \( t(81) = 3.07, p = .003, d = 0.36 \), and WTA and ultimatum, \( t(81) = 4.62, p < .001, d = 0.63 \) games. A smaller effect was observed, albeit, not statistically significant, between WTA and WTP games, \( t(81) = 2.35, p = .02, d = 0.26 \). Consistent with our predictions, people rated that they considered effort more in the business transactions than a windfall. There was a trend to assess one’s own effort greater than other’s effort; the planned contrast was a moderate effect but not statistically significant using our Bonferroni correction.

Fair division. The ultimatum was rated higher than both WTP, \( t(81) = 9.89, p < .001, d = 1.46 \), and WTA, \( t(81) = 12.31, p < .001, d = 1.63 \) games regarding the desire to divide money fairly, but the business games did not differ from one another, \( t(81) = 0.53, p = .60, d = 0.07 \). Thus, fairness expectations depended on whether the game involved a windfall or earned monetary transaction.

Maximizing income. Maximizing their own income was rated higher in the WTA game compared with the ultimatum game, \( t(81) = 5.33, p < .001, d = 0.70 \), and compared with the WTP game, \( t(81) = 3.89, p < .001, d = 0.49 \). Again, we observed a moderate effect but not statistically significant between the WTP versus ultimatum games, \( t(81) = 2.11, p = .04, d = 0.28 \). Thus, consistent with many business transactions, maximizing income played a greater role when the individual was selling than buying a service, and maximizing income was least important for the windfall bargaining situation.

Outcome versus fairness. The pattern of responses differed between the three games, (degrees of freedom = 4, \( \chi^2 = 14.55, p = .006 \)) regarding which factor was more important (own income, fairness, or both) for each game. Fifty-one percent indicated that fairness was important in the ultimatum game compared with 29% and 28% for the WTP and WTA games, respectively. Whereas only 15% endorsed their own outcome being more important in the ultimatum game compared with 32% and 33% for WTP and WTA games, respectively. Approximately one-third of participants stated that both were equally important for ultimatum (34%), WTP (39%), and WTA (39%) games.

The results of Experiments 1 and 2 indicated that people took into account effort expended in a business context and perceptions of fairness differed depending on whether the bargaining game involved a windfall versus earned monetary transactions. Additionally, negotiating with friends versus strangers also appears to affect perceived fairness and valuation of effort in WTA situations. Experiment 2 was critical because we measured perceived effort to verify that it was the underlying reason why we observed different offers the games. Thus, we provided converging evidence from experimental manipulations (game contexts) and perceptions (self-reported) that participants placed a value on effort expenditure that influenced offer amounts.

To further examine the effect of effort on distribution of resources, we experimentally manipulated two different types of indirect effort in Experiment 3. Although there is clear evidence for the valuation of effort with associated work (poems, art, etc.; Kruger et al., 2004), some of the previous research has revealed that people who engage in

Table 1. Mean (standard deviations) ratings of each game in Experiments 2 and 3

| Question | Experiment 2 | | | | | | Experiment 3 | | | |
| --- | --- | --- | --- | F statistic | \( \eta^2_p \) | | | F statistic | \( \eta^2_p \) |
| **Fair division:** “To what extent did your desire to divide the money fairly play a role in making (accepting) the offer?” | | | | | | | | | | |
| Ultimatum | WTP | WTA | 82.02 | 0.50 | | | | | | |
| | 4.33 | (0.98) | 2.79 | (1.13) | 2.72 | (1.00) |
| **Consider effort:** “To what extent did you consider the amount of effort that went into the game (webpage) when making your offer?” | | | | | | | | | | |
| | 2.89 | (1.09) | 3.28 | (1.08) | 3.56 | (1.04) |
| **Maximizing income:** “To what extent did maximizing your own income play a role in making (accepting) the offer?” | | | | | | | | | | |
| | 3.02 | (1.28) | 3.34 | (0.95) | 3.77 | (0.80) |

Note: A five-point scale was used per question with higher scores indicative of greater agreement. All F statistics resulted in ps < .001. WTA, willingness to accept; WTP, willingness to pay.

seemingly unrelated tasks (i.e., indirect effort) place greater value on the outcome (Aronson & Mills, 1959; Festinger & Carlsmith, 1959; Gerrard & Mathewson, 1966). For example, Festinger and Carlsmith (1959) demonstrated that doing a tedious task and then being paid $1 to tell another person that the task was interesting lead to increased evaluations for said task. Additionally, many social psychologists use the “hazing” endured by fraternity pledges as an example of how effort (i.e., in this case doing arbitrary tasks) leads to higher evaluations of fraternity membership (Aronson & Mills, 1959; Gerrard & Mathewson, 1966). Typically, these examples are used to illustrate cognitive dissonance or effort justification whereby one’s actions lead people to change or “justify” their thoughts to match engaging in the action or effort put forth (Aronson & Mills, 1959; Festinger & Carlsmith, 1959). Although effort is implied in many business situations (including our games), we sought to examine whether indirect effort can also affect evaluations of bargaining situations. In our experiment, we manipulated the type of effort required by the participant before commencing the bargaining situations. Specifically, participants either had to complete an arbitrary task (i.e., 100 mouse clicks) or a task based on their performance (i.e., obtain 70% accuracy on trivia questions). Because people are sensitive to their own effort and other people’s effort (WTA and WTP differences observed in previous experiments), we also manipulated effort information for the other person involved in the bargaining situations. Participants were instructed that the other person either did or did not complete a task before advancing to the bargaining games.

It is important to note that our manipulation differs from previous manipulations because we were focused on the manipulation of effort instead of property endowment. Manipulations by researchers such as Cherry et al. (2002), Hoffman, McCabe, Shachat, and Smith (1994), and Ruffle (1998) had participants earn the pot of money that was used in a subsequent bargaining game (e.g., dictator). The focus of these experiments was to manipulate property rights or claims to the pot of money to be distributed. In contrast, the focus of our experiment was to manipulate effort by having participants earn (by completing a task) the right to play in the bargaining game instead of earning the pot of money to be bargained as in previous studies. It was critical that we control for perceptions of property rights such that we could isolate perceived effort as the explanatory mechanism. We contend that effort is a primary factor for the effects obtained in our previous experiments and that the influence of perceived effort is strong enough that even unrelated or indirect effort can bleed into bargaining situations and affect subsequent processing of fairness in such transactions. Furthermore, people take into consideration both theirs and other’s effort regardless if it is directly or indirectly related to the bargaining situation.

EXPERIMENT 3

Participants and design

One hundred twenty-five participants completed the experiment in exchange for extra credit. Participants were randomly assigned to one of four between-subjects conditions. The between-subjects factors were the different tasks participants completed before beginning the bargaining games (self: performance or arbitrary) and whether they were informed that the other person also performed the task (other: task or no task). All participants completed the bargaining games (ultimatum, WTA, and WTP) as the within-subjects factor, and game presentation was randomized per participant.

Materials and procedure

Before the experiment commenced, participants were informed that there were two tasks in the experiment and that each person had to complete a first task before proceeding to the second task. In the Self-performance condition, instructions indicated that the first task required answering 20 entertainment trivia questions and at least 70% of the questions needed to be answered correctly before advancing to the second task. They were informed that they would repeat the task until they reached the accuracy criterion. In the Self-arbitrary condition, instructions indicated that the first task required clicking with the mouse on the computer screen 100 times. A counter kept track of each click, and once 100 clicks were completed, they would advance to the second task. After completing the first task, participants were informed whether or not the other person also completed the same task before advancing to the games. In the Other-no task condition, instructions indicated that the other person did not have to complete the first task, and in the Other-task condition, participants were instructed that the other person did complete the same first task. After each game, participants answered the same set of questions as Experiment 2 to determine their perceptions of effort and distribution of resources.

Results and discussion

A mixed factorial ANOVA was conducted with game (ultimatum, WTP, and WTA) as the within-subjects factors and self (performance or arbitrary) and other (task or no task) as between-subjects factors. Separate analyses were conducted for each dependent variable: amount offered and question responses.

Amounts offered

Recall that self by other conditions reflect indirect effort (usually associated with effort justification research) and not direct effort (such as effort heuristic where there is a direct link between effort and value) associated with each game. Figure 3 presents the mean amounts per game for each of the possible between-subjects conditions. Initially, we replicated the main effect of game observed in the previous experiments, $F(2, 242) = 96.15, p < .001, n^2_p = .44$. Notably, the interaction of self × other was statistically significant.

2Selection of questions was based on prescreening responses such that the 70% criterion was feasible.
Participants in the self-performance conditions demanded more money (WTA) when the other person did nothing than when the other completed the task ($d = 0.40$); however, whether the other person completed the task had a minimal effect on WTP amounts ($d = 0.13$). Interestingly, participants in the self-arbitrary conditions demanded less money (WTA: $d = 0.39$) and were willing to pay less (WTP: $d = 0.47$) when the other person did nothing compared with completing a task. In our manipulations, it appears that participants who completed the arbitrary task valued their own efforts more (and presumably were able to justify their efforts) only when someone else endured the same arbitrary task which is consistent with hazing situations where participation in non-relevant tasks increases membership valuation (Aronson & Mills, 1959). However, when participants completed a performance-based task where it is presumably easier to justify and link their effort to their own performance, they demanded more money when the other person did not have to endure the same task. We demonstrated that indirect effort produced a small but significant effect that supports our contention that indirect effort can affect behavior in bargaining situations even when it is not directly related to the bargaining context.

### Consider effort

Although all questions pertained only to the games, the indirect effort manipulation affected participants’ perception of the effort associated with the games resulting in a three-way interaction of self by other by game, $F(2, 242) = 4.65$, $p < .05$, $\eta^2_p = 0.04$. The ratings associated with the interaction are presented in Table 2. Note that effort considerations were consistent with the offer amounts extended in the WTA games. Specifically, effort with the game was rated higher in the self-performance condition when the other person did nothing, and the converse was true for the self-arbitrary condition where effort was considered more when the other person also completed the task. These results provide converging evidence for the type of indirect effort matters when evaluating bargaining situations based on effort. Additionally, we replicated Experiment 2 results that effort consideration is more important in business games than ultimatum game: WTA versus ultimatum, $t(124) = 7.19$, $p < .001$, $d = 0.79$, and WTP versus ultimatum, $t(124) = 6.14$, $p < .001$, $d = 0.66$. The two business games did not differ from one another, $p > .017$, $d = 0.11$.

### Fair division

Consistent with Experiment 2, desire for a fair division mattered more for the ultimatum game compared with the business games: WTA versus ultimatum, $t(124) = 12.98$, $p < .001$, $d = 1.63$, and WTP versus ultimatum, $t(124) = 13.73$, $p < .001$, $d = 1.71$. The business games did not differ from one another $p > .05$, $d = 0.01$. The interaction was not statistically significant.

### Maximizing income

Consistent with previous results, individuals demonstrated a preference for maximizing income in

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**Table 2. Mean (standard deviations) of effort consideration for each game based on self by other conditions in Experiment 3**

<table>
<thead>
<tr>
<th>Game</th>
<th>Self-performance</th>
<th>Self-arbitrary</th>
<th>$d$</th>
<th>Other-no task</th>
<th>Other-task</th>
<th>Other-no task</th>
<th>Other-task</th>
<th>$d$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ultimatum</td>
<td>2.84 (1.29)</td>
<td>2.69 (1.03)</td>
<td>0.13</td>
<td>2.35 (1.12)</td>
<td>2.77 (0.88)</td>
<td>-0.42</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WTP</td>
<td>3.19 (0.95)</td>
<td>3.53 (0.98)</td>
<td>-0.35</td>
<td>3.39 (0.95)</td>
<td>3.29 (1.07)</td>
<td>0.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WTA</td>
<td>3.84 (0.90)</td>
<td>3.50 (0.88)</td>
<td>0.38</td>
<td>3.10 (0.98)</td>
<td>3.42 (0.85)</td>
<td>-0.35</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note: Higher scores indicate greater agreement; $d$ refers to Cohen’s $d$. WTA, willingness to accept; WTP, willingness to pay.*
Because it was based on a windfall. In contrast, the value of the WTA, ̂(124) = 8.10, \( p < .001, \)  \( d = 0.90, \) and WTP, ̂(124) = 4.73, \( p < .001, \)  \( d = 0.56, \) games relative to the ultimatum game. Similarly, individuals rated the importance of maximizing income higher for the WTA game than the WTP game ̂(124) = 4.07, \( p < .001, \)  \( d = 0.36.\) This finding provides further support that individuals demonstrate a tendency to demand more for a given service than they would be willing to pay for the same service. The interaction was not statistically significant.

**GENERAL DISCUSSION**

To support our contention that effort matters in bargaining games, we examined effort from three unique perspectives: (a) implied effort manipulated by game description (all Experiments); (b) measured perceptions of effort (Experiment 2 and 3); and (c) manipulated indirect effort (Experiment 3). The results of all three experiments and methods converged to tell the same story that perceived effort matters in bargaining situations. Supporting an effort heuristic interpretation (Kruger et al., 2004), we demonstrated that other-oriented egalitarian fairness norms do not apply when effort has been expended as in our business games (WTP and WTA); however, egalitarian fairness norms did apply to a windfall (ultimatum game). Using effort as a heuristic for value, participants valued the service of developing a Web site more than the windfall regardless of whether someone was selling (WTA) or purchasing the service (WTP). In all three experiments, when effort was expended to create a Web page (WTA or WTP), then that effort increased the perceived value as reflected in higher offer amounts in comparison with 50–50 split observed in the ultimatum game demonstrating that windfalls were perceived as different from business transactions. Thus, fairness was dependent on the bargaining context providing additional support that fairness is context-specific (Fiddick & Cummins, 2007) and supports the idea that earned money depends on the market-pricing (Heyman & Ariely, 2004), whereas windfalls rely on communal sharing (DeVoe & Iyengar, 2010; Fiddick & Cummins, 2007; Fiske, 1992; Handgraaf et al., 2003). Perhaps even more compelling is that our results are based on a within-subjects design, and we found a robust large effect for the distribution of resources. Additionally, as demonstrated in Experiment 1 with the minimum and maximum amounts, participants appeared to have a floor and ceiling amount that is acceptable for each situation and extended offers that lie between these two extreme values. As in real-world negotiations, participants are willing to adjust slightly above and below their offer amount, albeit, they most likely will not entertain offers that extend beyond the range (minimum and maximum).

Furthermore, we demonstrated that the amounts offered in bargaining games are the same as what people construe to be a fair offer (Experiment 1) and that participants adjusted their perceptions of the bargaining situations to align with the amounts offered (Experiment 2 and 3). The direct measurement of perceptions of effort provides further evidence that differences in offers in the three game conditions were indeed being driven by perceptions of effort. Consistent with our theoretical framework, participants reported taking into account effort more in the WTA and WTP games than in the ultimatum game. In addition, participants reported valuing effort more in the WTA than the WTP conditions. We obtained the same general trend with the other perceptions. For example, the desire for a fair division was higher in the ultimatum game than the WTP and WTA, presumably because the 50–50 split was consistent with egalitarian fairness. Additionally, participants were most concerned with maximizing their own income in the WTA condition and least concerned in the ultimatum condition.

Another contribution was the finding that offers differed when negotiating with a stranger or a friend (Experiment 2). Most research in motivated bargaining is based on negotiations among strangers, but many real-world negotiations can be based on transactions among acquaintances or good friends. Thus, bargaining with friends represents a different type of boundary context. Consistent with the explanation presented by Mandel (2006) that friendship negotiations follow a generosity norm, participants in Experiment 2 were willing to accept less money from a friend than a stranger for the Web page service that implies that participants valued the effort of friends more than a stranger. Future research may explore further the asymmetry we observed in comparing WTA and WTP and compare the generosity norm versus the reciprocity norm in explaining the effect of friendship on fairness.

Interestingly, when people had expended effort on a non-related task to play the games (in Experiment 3), this indirect effort only affected the business games which is quite compelling considering that effort expended on the performance and arbitrary tasks was not designed to affect offers in the bargaining game because they were separate tasks. It appeared that people valued their own effort more when someone else engaged in the same arbitrary task which is consistent with the effort justification literature related to hazing and group membership. However, if their effort was based on a task that
required some level of performance or ability, then this effort was valued more when someone else did not engage in the same performance-based effort.

In sum, our results lend more credence that the windfall is a special case where effort valuation is not applicable (egalitarian fairness norms win out), and effort matters more in contexts where people are expected to expend some level of effort. We demonstrated through different methods the impact of perceived effort (both self and others) on fairness and resource allocation in motivated bargaining. It is also notable that the effort manipulations in the present set of experiments are fairly modest and based on a hypothetical scenario. One conclusion may be that the bar for exerted effort may be quite low for people to “deserve” compensation or value for that effort. It might also be expected that exerted effort in a real-world setting may have an even stronger effect than the scenarios in the present study suggest because the effort would be more salient to perceivers.

The results of our study have practical implications for many business contexts. For example, consider a typical scenario from academia in which publishing house representatives (e.g., book reps) make sales pitches to faculty to adopt their books for classes. How many academics choose a book because the book representative from a given publishing company works harder than others? Certainly, most faculty would respond that they chose the best quality textbook or the textbook that best fits their course. However, the data in the present study would suggest that the value or perceived quality of a textbook may be based at least in part on the effort expended by the book representative.

Limitations and directions for future research

Although we incorporated earned income in bargaining games, one could argue that our modifications do not represent a close analogue to the real world because there are many other factors that influence negotiations. We concur, however, we do not view this as a major limitation to our study for several reasons. Our primary objective was to demonstrate that the amount of effort exerted matters in evaluating a service and subsequently affects amounts that people compensate themselves and others accordingly. When no effort is involved as in an unexpected windfall, participants compensated themselves and others accordingly. When no effort was involved as in an unexpected windfall, participants followed the oft-cited egalitarian fairness norms underlying the ultimatum game by offering a 50–50 split.

Another potential limitation of the present study is that our participants proposed amounts and did not engage in negotiation processes. Negotiations between two people add complexity via numerous psychological mechanisms (e.g., non-verbal behavior, voice intonation, perceived bargaining leverage, social status, low ball counteroffers). Our aim was to control for these potential factors to demonstrate that effort is an integral component in perceived fairness before reintroducing these variables in realistic and interactive negotiation situations. Nevertheless, replicating our effects in face-to-face negotiations between people is an important and potential topic for future research.

Although our results supported our position that participants perceived differences in effort across the three games (as per our game manipulation), the ultimatum game differs from the WTA and WTP games in at least one other aspect. Specifically, the pot of money in the ultimatum game, by virtue of it not being earned, was exogenous, whereas the effort to create the Web page in the WTA and WTP games was endogenous (generated from either the participant or the other person). Future studies could attempt to operationalize effort such that both the effort and no effort conditions are endogenous to the participants. Another potential research strategy would be to endow participants with property rights similar to the conditions of Cherry et al. (2002) and Leliveld et al. (2008) and cross those conditions with the effort manipulation conditions to compare the relative influence of the effort heuristic and the endowment effect on offer amounts. The objective of the present study was to compare a business context (WTP, WTA) to the ultimatum game to demonstrate how effort impacts offer amounts in bargaining. We would also encourage researchers to investigate the role of effort with other boundary conditions in bargaining situations.

CONCLUSION

We contend that the typical ultimatum game does not reflect real-world negotiations because people rarely begin negotiations with a windfall. Instead, bargaining and negotiations are typically based on a commodity or service achieved through effort and investment of resources. Consistent with the effort heuristic (Kruger et al., 2004), the present findings revealed that earned (through effort) and windfall monetary transactions differentially influence perceived fairness. When effort is expended, as in providing or buying a service, participants placed a higher monetary value on that effort and compensated themselves and others accordingly. When no effort was involved as in an unexpected windfall, participants followed the oft-cited egalitarian fairness norms underlying the ultimatum game by offering a 50–50 split.

REFERENCES


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