

The Parable of the Great Banquet: Insights from Laboratory Economics

R. Mark Isaac*

Florida State University

Douglas A. Norton**

Florida State University

Abstract: *The New Testament parables speak to our modern lives with interesting behavioral questions. For example, on reading the Parable of the Great Banquet one might ask, “What causes people to accept or reject what would seem to be a beneficial banquet?” Laboratory experimental economics can provide insight into this question. We conduct a series of laboratory experiments based on a variation of the multi-armed bandit problem. Subjects choose between a “task screen” and a “separate screen” with a random end-time to the experiment. On the task screen subjects work at a real-effort task with a known payment per task completed (this constitutes the known arm). Meanwhile, subjects can also choose the separate screen whose value is known only to the host (the unknown arm). Our manipulations include the wage rate on the known arm (opportunity cost) and the perceived credibility of the value to the separate screen. These manipulations provide insight into the Parable of the Great Banquet. Invitees’ opportunity costs and perceptions of the credibility of the host are significant explanations of banquet attendance. JEL codes C91, D81, Z12.*

1. Introduction

In a recent *Faith & Economics* article Laurence Iannacone wrote of the abundant opportunities for research in the field of the economics of religion (Iannacone, 2010). We could not agree more. The

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*misaac@fsu.edu; **norton.daniel.alan@gmail.com

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possibilities seem numerous and exciting. But our article, even for this nascent field, may seem strange. We depart from the standard economics of religion approach and employ laboratory experimental methods, still relatively new to economists, to answer our questions.

The standard approach of the economics of religion is to use economic methods to study economic aspects of religion (Iannacone, 1998). For example, religious proscriptions can have implications for different kinds of human capital accumulation (Lehrer, 2009) or alter other behaviors of social concern (Hungerman, 2011). Our research, on the other hand, is not interested in the economic consequences of religion (such as those just mentioned); rather, we use our economic tools to better understand our Christian faith.

Specifically, we will use experimental methods to study the Parable of the Great Banquet from Luke 14:15 – 24. We start with a simple premise: The parables Jesus spoke long ago are relevant to our modern lives. To make this point some have emphasized, “Jesus never said anything. Jesus says things.”¹ This implies that we are all modern day invitees to a great banquet and each of us has a choice to accept or reject the banquet invitation. The central question we will ask in our experiment is, “What can cause people to reject what would seem to be a beneficial banquet?”

While this is the central question there are numerous experimental design features that we must decide upon. Moreover, choosing among these different design details will require a deeper understanding of the Parable of the Great Banquet. Section 2 provides a description of the details and interpretations of the parable. Through our understanding of the Parable of the Great Banquet we provide a framework in Section 3 that attempts to mimic the decision situation that faces modern invitees. The implementation of an experimental design is not without abstraction.² Some of the characteristics of the parable mapped well into the laboratory while others did not. In Section 4 we provide a discussion of the strengths and weaknesses of our experimental design in light of the parable. Then, in Section 5 we present a shortened (mostly verbal) description of our results (reported in full in Isaac & Norton, 2012).³ Finally we conclude with some reflections on these findings in Section 6.

Before proceeding to the details of the research it will be helpful to take a step back for general purposes. The objective of this experimental design is *insight* into what causes modern day invitees (like us) to accept or reject the banquet invitation. But we are not in completely uncharted territory. Stephen Brams’ *Biblical Games: Game Theory and the Hebrew Bible* (1980) utilized concepts from game theory to study stories such as Abraham and Isaac and the Judgment of Solomon (1 Kings 3:16 - 28). The book received mixed reviews; but one review stood out for us in thinking about the objective of our research. In the *Journal of Biblical Literature*

James S. Ackerman wrote:

Brams is not overly familiar with biblical scholarship and this is at once the book's strength and liability ... *I find Brams sometimes helpful in expanding my perception of the possible thought processes that lie behind a given action in the story* (Ackerman, 1982, emphasis added).

We cannot oversell how helpful Ackerman's thoughts were to guiding our research. We want to use experimental methods to help us better understand our Christian faith; the goal of this work is *insight* into what motivates the accept-or-reject decision of invitees.

2. Interpretations of the Parable of the Great Banquet

The common elements of the Parable of the Great Banquet are three-fold: (1) the banquet or feast image was a well-established allusion to the messianic banquet; (2) there were some invitations to this banquet which were rejected with lame excuses; and (3) the rejection of the invitations was followed with a new wave of invitations to different people. We discuss each of these in turn.

First, before discussion of the initial invitations and their rejection we need to be clear about whether the banquet is merely a dinner or represents something different. Most scholars recognize that the banquet or feast refers to the end-times messianic banquet prophesied in Isaiah 25:6-9. For example, Brad Young in *Parables* sees parallels between the statements of Rabbi Akiva (who, living 50-135AD, was a near contemporary of Jesus) and those made in the Parable of the Great Banquet. Young writes,

The words "everything is ready for the feast" [from Akiva] are closely paralleled in the Gospel parable when the servant calls the people to the great banquet by saying "Come; all is now ready" ... For Akiva, the banquet refers to life in the world to come (Young, 1998, p. 179).

Moreover, Craig Blomberg in *Interpreting the Parables* writes, "The imagery of a meal as a symbol for the end-time celebration of God's people was standard in Jewish thought" (Blomberg, 1990, p. 233-234).⁴

In addition to the research of these scholars one can also consider the context of the parable within the Gospel of Luke. Prior to the Parable of the Great Banquet is a parable where Jesus states that those who invite the crippled and lame to their banquets, "... will be repaid at the resurrection of the righteous" (Luke 14:14). Following that statement a Pharisee present at the dinner proclaims, "Blessed is the man who will eat at the feast in the kingdom of God" (Luke 14:15). This is interpreted by cultural scholar Kenneth Bailey as "... a challenge for Jesus to express his views on the [messianic banquet]" (Bailey, 2008, p. 309). The language prior to the

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start of the Parable of the Great Banquet demonstrates that the banquet concerns the life of the world to come and our salvation.

Second, we do not engage in a deep discussion about the identities of those who received the *initial* invitation;⁵ instead, we opt to focus on the excuses they offered. Kenneth Bailey investigates the cultural background of the excuses and notes that: (1) the first guest needed to inspect an *already purchased* field; (2) the second guest needed to test *already purchased* oxen. Bailey notes that both invitees ask to be excused; however, there were actions the invitees could have taken that would have helped the host save face. For example, if the invitees showed contrition and elaborated on their situation with *good reasons* for not attending it would have not been a public insult. (3) The third guest implicitly accepted the *first* invitation but declines the *second* invitation because he has “married a bride.” Moreover, he does not ask to be excused. One might think this man merely has poor planning⁶ but Bailey writes that the third guest’s excuse is tantamount to, “I have a woman in the back of the house, and I am busy with her. Don’t expect me at your banquet” (Bailey, 2008, p. 315).

According to Bailey all the excuses were lame and, from a rhetorical perspective, Jesus seems to capture the audience through increasing the insult of each excuse offered until, “The third man’s excuse is unspeakably offensive ... He does not even ask to be excused.” Other than explicating their cultural background, Bailey does not speak to some deeper allegorical meaning of the excuses. Likewise with scholars Blomberg and Young. Blomberg writes that, “[The excuses] need not stand for any particular type of reason for rejecting the kingdom; others might have just as easily have been listed ...” (1990, p. 234). Young agrees and writes, “But the whole complex of excuses and their similarity to the biblical text does not have any real significance for the interpretation” (1998, p. 184).

What is interesting is that these positions are likely taken in response to numerous other texts that seek to find a deeper allegorical meaning in the excuses. For example, the oxen and field are often interpreted as love of possessions or anxiety regarding business, both of which could pull people away from the banquet. The excuse regarding the recent marriage is sometimes thought to be indulgence in too much pleasure, or the potential for a couple to be too inward looking and forget about their obligations to the community (Buttrick, 1981).⁷ One interesting consideration about the last excuse is that the man might have refused to attend the banquet based on adherence to the Deuteronomical code, specifically Deuteronomy 24:5, which states that “If a man has recently married, he must not be sent to war or have any other duty laid on him. For one year he is to be free to stay at home and bring happiness to the wife he has married.” Barclay suggests that this demonstrates that even seemingly good things can crowd out our attendance at the banquet (1956, p. 201).

Whether or not the excuses represent specific forms of self-justification that modern invitees also engage in might be a question for a different experiment. What seems clear is that there were other things the invitees valued more than attendance at the banquet. And, as Blomberg wisely states, “[The excuses] are meant to ... point out the absurdity of any excuse for rejecting God’s call into his kingdom” (1990, p. 234).

Third, once the *second* invitations are rejected the Master becomes angered but then responds with grace and orders the servant to “Go out quickly into the streets and alleys of the town and bring in the poor, the crippled, the blind and the lame” (Luke 14:21). Once the servant returns with those people he notifies the Master that there is more room available in the house. The Master responds, “Go out to the roads and country lanes and compel them to come in, so that my house will be full” (Luke 14:23). Scholars dispute details about the identities of these groups. Some scholars claim that these additional invitations were to the Gentiles (Robinson, 1978). Others suggest that the invitations were more general and represented invitations to all other people (Young, 1998), while others believe that it could be either (Blomberg, 1990). Kenneth Bailey (2008) suggests a link between this passage and Isaiah 56 that the others do not make explicit in their texts. He writes,

Isaiah’s vision of salvation (Is. 56:1) was for three types of people: The first was the pious of Israel (who are just and righteous [v. 2]). Second, the outcasts of Israel (the eunuchs [v. 3]). And finally, he will gather “others to him besides those already gathered” (Is. 56:8) (p. 319).

In summary, we worked through the details of this parable in order to gain a greater understanding of potential design features the experiment would need. What seems clear from our analysis are two central points: (1) the banquet represents an invitation to salvation, and (2) those who were invited made excuses for their absence that some scholars believe represent similar obstacles faced by modern invitees.

We construct a one-shot choice experiment with a large reward for banquet attendance, but where each invitee still has an outside option that acts as an excuse for their absence. This seems to resonate with Young’s conclusion, “While the great invitation is open to all, the invited guests stand in mortal danger of missing a never-to-be repeated opportunity” (1998, p. 186). The details of this experimental design are presented in the next section.

3. Experimental Design

The experiments were conducted at the Florida State University XS/FS laboratory using the ORSEE recruitment software (Greiner, 2004) and

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z-Tree computer interface (Fishbacher, 2007). All participants were FSU students who were paid a \$10 show up fee and earned additional money depending on decisions made during the experiment. All experiments were run with groups of four people, with multiple groups per lab session.

Within each group three participants were randomly assigned the role of invitee while the remaining group member was assigned the role of host. Of course the language used in the instructions was neutral with Participant A as the host and Participants B,C, and D as invitees. For expositional purposes we call them either host or invitee hereafter. In the experiment there were two stages. First, regardless of role, each person participated in an incentivized task for two minutes. The task involved writing down how many numbers were in a string of 20 randomly generated letters and numbers, as in this example:

D X 1 3 Y L 1 T 1 F Z J 1 9 3 T 1 W 6 B.

Participants received \$0.05 or \$0.10 (depending on the experimental treatment) per correct answer. There was no penalty for incorrect answers, but there was a slight time delay after each incorrect answer to penalize guessing. Because the second stage had a random end-time and the number of correct answers could depend on other choices made (not ability in the task) we needed this first stage to obtain a clear measure of ability.

As mentioned above, the second stage of the experiment involved a random end time, uniformly distributed on the interval [0,900] seconds. Unlike the first stage, the second stage made use of the different roles. Invitees earned money in two different ways. On the task screen invitees could earn a known amount of money per task completed (same task as the first stage) and on the separate screen they played tic-tac-toe.⁸ The invitees did not earn money directly from playing tic-tac-toe, and were instead told, “You will earn some non-negative amount of money if you end the experiment on this separate screen.” We also informed them that non-negative meant zero was also possible. Invitees could switch back and forth between screens as much as they pleased without losing money already earned. However, while not penalized in that regard, switching carried an opportunity cost. It is important to note that in our experiment invitees could earn money from both the task and separate screens combined.

The host earns money in a different way. For each invitee who ends the experiment on the separate screen the host earns \$5. For each invitee who does not end the experiment on the separate screen the host earns \$2.50. At the start of the experiment the experimenter informs the host about the value of ending the experiment on the separate screen, “V.” In all experiments this value is \$15. The host can communicate this value to the invitees in an attempt to persuade them to join the separate screen; however, it is made clear to all participating that we (the experimenters)

will not verify the truth of those communications.

Throughout the experiment communication uses a bilateral chat interface (like instant messaging). There are no mass messages and each conversation between a host and invitee is private. Moreover, chat conversations between invitees are not permitted.

The setting is stark and the tension is clear. Invitees have two choices: earn money on the task screen and/or separate screen. Meanwhile, the host wants to persuade the invitees to choose the separate screen so that the host earns more money. But, the invitees do not know whether they can trust the host to represent the true value.

One helpful way to think about this problem is to consider it as a variation of a multi-armed bandit problem. Invitees are making a choice between two arms: one arm is known with certainty (it is a degenerate lottery) while the other arm is uncertain. The form of uncertainty is not like standard risk where probabilities and prizes are known; instead, it is more like ambiguity where known-to-be-relevant information is not in fact known (Camerer, 1995). Models of ambiguity often take the form of pessimistic expectations (Gilboa and Schmeidler, 1989). At the limit this pessimism could take the form of an individual in our experiment assuming the worst—that the host is destined to act malevolently (see Isaac & Norton, 2012, for a more explicit discussion).

Our treatments vary the amount earned per completion of tasks (\$0.05 or \$0.10) and whether the value of the separate screen is filtered through a host or known with certainty. In our “credibility” treatment where the value is certain, we (the experimenters) explicitly tell them, “You will earn \$15 if you end the experiment on the separate screen.”⁹ We do not conduct experiments with low wage and “credibility” because results obtained in the high wage “credibility” treatment were so dramatic we did not feel these would be necessary. In all treatments the end-time is random. As seen in Table 1 the randomly generated end-times were: 92, 215, and 491 seconds.

Understanding the decision-theoretic benchmark will be useful for understanding the results section. Suppose the invitee knows (1) the value of the separate screen, (2) the uniform distribution over when the

Table 1. Experimental Treatment Matrix

TREATMENT	92 SECONDS	215 SECONDS	491 SECONDS
Low Wage with Ambiguity	5 Groups in 2 Sessions (5 hosts,15 clients)	5 Groups in 2 Sessions (5 hosts,15 clients)	5 Groups in 2 Sessions (5 hosts,15 clients)
High Wage with Ambiguity	5 Groups in 2 Sessions (5 hosts,15 clients)	4 Groups in 2 Sessions (4 hosts,12 clients)	5 Groups in 2 Sessions (5 hosts,15 clients)
High Wage with Credibility	1 Session (8 Individuals)	1 Session (4 Individuals)	1 Session (7 Individuals)

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experiment will end, and (3) his or her opportunity cost (based on ability and the wage rate). Then the invitee could calculate an optimal stopping time. This would dictate when the invitee should switch from the task screen to the separate screen. But, this is the simplest case because the value is not known in other treatments. We believed that the ambiguity would result in pessimism about the truthfulness of the information and would result in a lower probability of ending the experiment on the separate screen.

4. Theological and Cultural Interpretation

At the beginning of this project we asked ourselves, “What would cause a modern invitee to reject what would seem to be a beneficial banquet?” This section attempts to map the features of the experimental design into our cultural and theological understanding of the Parable of the Great Banquet. This section is split into two subsections. The first subsection concerns the decision framework of the experiment and the experimental treatments: opportunity cost and ambiguity. The second subsection concerns clarifications. These are the aspects of the experiment that might seem strange if taken literally and thus need further discussion. Also, the clarifications subsection includes some explanation of the cultural aspect of pre-commitment to attend the banquet that is not included in our experiment.

A. The Experimental Design and Treatments

We begin with the premise that life is a finite one-shot game with an uncertain end time. Moreover, each modern invitee receives communication about the banquet option and must choose whether to engage this banquet option or the outside option. The presence of the outside option seems necessary to motivate a possible excuse for not attending the banquet. These basic principles provided the foundation on which we built our decision situation.¹⁰ Next we explicate the experimental interventions.

Opportunity Cost

As mentioned in Section 2 some scholars have attempted to match actual motivations to the excuses provided in the parable. While those interpretations do not seem to reflect sound exegesis it might still represent an important thought exercise. What would be our own motivations for rejecting the invitation to the salvation? No doubt through introspection we will find some actions, habits, and beliefs represent more daunting obstacles than others to our pursuit of God and salvation (banquet attendance).

In our experimental design we conceive that the invitees might perceive that the value of their banquet alternative exceeds the value of attendance.

To manipulate the attractiveness of activities apart from the invitation to salvation we increase or decrease the payment from their other option. This represents the fact that some obstacles are more difficult to overcome than others.

One particular example of high opportunity cost might stem from social image concerns. Consider the case of Rabbi Yohanan ben Zakkai (AD 30 -90) who was on his death bed when he bestowed this blessing on his students, “May it be God’s will that the fear of heaven be upon you as much as the fear of flesh and blood” (Neusner, 1970, 227). The Rabbi was not instructing his students to fear men more than God; however, he knew that they *did* fear men more than God and was suggesting that their social image concerns might be substituted for “God image concerns.”

Building on this point, in the Parable of the Great Banquet the second wave of invitations went to people who had lower social status and therefore, we presume, lower opportunity cost. Perhaps these new invitees were stunned and joyful, like the person who found the Pearl of Great Price, for whom very other option seemed valueless by comparison. The Parable of the Rich Young Ruler provides a counter-point. The ruler appears to have a high opportunity cost and is unable to see the greater benefit of putting his belongings up for sale.

In summary, the opportunity cost manipulation can be thought of as modelling people who value the world more or less. So even in the presence of doubt (or ambiguity), a person who values the world less (low opportunity cost) is more likely to choose banquet attendance (our separate screen) than one who values the world more.

Ambiguity

The parallel for ambiguity within the story is less clear; however, from a broader lens it makes sense. Throughout the Old and New Testaments there is an emphasis on faith and who/what we place our faith in. The First Commandment is, “You shall have no other gods before me” (Exodus 20:3) and much of the prophetic literature is a testimony to how the people of Israel need to reorient their hearts towards God. In Hebrews 11 were are told, “[Faith is] assurance in what we do not see” (v. 1). We cannot escape the importance of faith and believing that God is credible and faithful. Twentieth century American pastor A.W. Tozer wrote, “What comes into our minds when we think about God is the most important thing about us” (Tozer, 1961, 1). Tozer was pressing on something crucial: our perceptions about God matter.

By paying the host in our experiment \$5 or \$2.50 per person who completes or does not complete the experiment on the separate screen, respectively, we are hoping to generate doubt about the value. We are *not* saying that God is not credible. We *are* saying that perceptions can play

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a role in a modern day invitee's decision to attend the banquet. In our experiment the host can tell the truth despite incentives to distort it. In fact, as we will show, the host almost always tells the truth. What matters is whether people believe they can trust the host. The case of complete certainty is like having a mature and assured faith.

Combined Treatments

The interaction of high opportunity cost and ambiguity create a tense environment. On one hand, we may have reasons to believe or not believe the value of the separate screen. On the other hand, we can see that we are "missing out" on these other options if we go to the separate screen. In the presence of this uncertainty we can become very pessimistic and fixated on what we are losing and not what we are gaining. Douglas Steere, writing about the Pearl of Great Price, notes,

The perverse notion once occurred to me that this parable might be put in terms of an auction, perhaps even a "Dutch Auction"... "Shall I bid now or wait a little longer in the hopes of further reduction"... "Is the pearl really cheap enough so that my resources will not be strenuously taxed if I raise my hand and give the signal that I will buy?" After all I have managed until now on synthetic manufactured pearls (2008, 34-35).

Jesus promises, "my yoke is easy and my burden is light" (Matthew 11:30), but our perception as humans does not always agree. The question is why? We conjecture that one reason is because what is being given up is *known and salient* while what is being gained is *doubted and given less weight*.

To summarize: we characterize the ambiguity treatment as instilling doubt in our participants about the value of the banquet. Different opportunity costs reflect the strength at which our participants value things beyond the banquet. The experiment itself is not designed to replicate the parable in all of its nuances; rather, the experiment is designed to look at insights into the decision process of modern invitees to salvation.

B. Clarifications

As mentioned earlier, there are several aspects of the experiment that, if taken literally, would seem strange. This section seeks to set the boundaries of what we would like for our readers to infer from our laboratory setting of the parable.

By setting the valuations of the host to \$5 per invitee attendance and \$2.50 per invitee absence we are *not* suggesting that those previously uninvited are somehow less valuable to God. In order to manipulate the perceived credibility of the host, or generate doubt, the payoffs need to be different. How different? We believed that we could not set the absence

payoff at less than \$2.50. There is an abundance of literature on other-regarding preferences that suggests people will make decisions based on fairness. We did not want invitees to attend out of sympathy for the host. Also, in many games used to test these other-regarding preferences (like dictator and ultimatum games) half-the-endowment seems like a focal proposal (Cooper & Kagel, forthcoming). Thus, in our experiment we do not let the payoff to absence exceed \$2.50.

The best monetary outcome for invitees in our experiment would approximate a “death-bed confession.” While *ex-ante* this is not optimal (in an expectations sense), some lucky invitee could stay on the task screen and earn money in the task up to the final second of the random end-time and then switch to capture the benefit of the separate screen. By acknowledging that this is the most money an invitee could earn we are *not* implying that death-bed confessions are “best.” But we are not saying that something approximating death-bed confessions are bad, either. Recall the Parable of the Vineyard Workers:

That evening he told the foreman to call the workers in and pay them, beginning with the last workers first. When those hired at five o’clock were paid, each received a full day’s wage. When those hired first came to get their pay, they assumed they would receive more. But they, too, were paid a day’s wage. When they received their pay they protested to the owner ... [The owner replies] “Friend I haven’t been unfair! Didn’t you agree to work all day for the usual wage? ... Should you be jealous because I am kind to others?” (Matthew 20:8 - 15).

Similarly the Gospel of Luke reads, “There is more joy in heaven over one lost sinner who repents and returns to God than over ninety-nine others who are righteous and haven’t strayed away!” (Luke 15:7).

If we had wanted to avoid the interpretation of a death-bed confession being the best payoff for an invitee we could have caused participants to forsake *all earned money in the task* prior to joining the separate screen. It would seem that increasing the costliness of the separate screen would decrease people joining it, but this is ultimately a conjecture that would need empirical support.

In our experiment we allow for participants to switch back-and-forth between the task and separate screen. Participants can do this as often as they choose, without penalty, other than foregone earnings from the task. In our results section you will see that participants do switch. Some might think this bestows a cheapness on the invitation acceptance—kind of like dabbling. For example, what would it mean for someone who had switched many times and just happened to end the experiment on the separate screen? We might wonder whether it was sincere commitment

and belief or merely dabbling. We do not have survey data to suggest an answer to this question. Moreover, this notion of switching can open up all kinds of conversations about backsliding-or-election versus backsliding-and-election as well as about the ease of salvation versus the commitment of a practicing Christian.

Finally, from a cultural perspective, in Middle Eastern banquets there were two invitations. The first invitation was to inform guests that there would be a banquet. A guest would then commit to coming to the banquet. After aggregating all that information, the host would determine how much and which kind of food to serve. Then, at some time in the future, the host would send his servant to announce to all the guests that the banquet was ready (Bailey, 2008). In the parable the invitees accepted the invitation, not turning it down out of fear they would be unable to reciprocate such extraordinary generosity. But they provided excuses at the second invitation. The notion of pre-commitment to attend the banquet is completely lacking from our experiment. This is a significant deviation because the rejection is not as personal and insulting in our experiment as in the original story.

Pre-commitment is a real phenomenon and has been studied in both economics and psychology. People deviate far less often from a pre-committed course of action than from one to which they do not pre-commit (McGonigal, 2012). We could have attempted to conduct experiments with pre-commitment but it would not have been completely clear what it would mean to pre-commit to an uncertain outcome. The best way we can think to approximate pre-commitment in our experimental set up is to look at the binary variable “switch:” did a participant switch or not at any time in the experiment? This is far from perfect since switching may merely represent dabbling and not commitment.¹¹

The timing of the experiment maps well into the parable since there is uncertainty about when the experiment will end. This either corresponds to an uncertain end-time in our lives on earth or the uncertain time at which Christ will come again (Matthew 24:36).

There is clearly a possibility that we did not clarify every aspect of the mapping from story to lab; therefore, readers may still find something to object to. A number of these aspects can be adjusted and manipulated in the laboratory in future experiments. For example, in our setting we do not allow for the participants to try to persuade each other to attend or not attend. This means the Great Commission is absent from our experiment. Further experiments could address some of these extensions.

5. Results

We conducted a total of 29 groups with a host and the two different wage

rates per-completion of the task (see Table 1 above). There were also 3 control sessions conducted where participants (all of whom had a high wage for completion of the task) experienced no ambiguity over the value on the separate screen. We have 87 invitee observations in the ambiguity condition. In the complete credibility experiments there were a total of 19 observations. These observations will form the basis of our analysis of the accept/reject decision.

To summarize our results up-front: invitees are not following the decision-theoretic benchmark for switching as if they believed the host was credible. Given that the host almost always reveals V truthfully (only about 8 percent of the invitees received a false representation) this is evidence that ambiguity aversion—or our attempts to create doubtfulness—is happening. However, invitees are not completely avoiding the separate screen. The question then is whether our decision-theoretic model can predict some of the deviations from complete pessimism. Indeed, low opportunity cost invitees have a greater likelihood of ending the experiment on the separate screen. Finally, we thought there might be chat level variables that altered invitee expectations in a consistent manner; however, these chat level variables were inconsequential in predicting invitee behavior. In fact, it is the absence of returned communication from the invitees to the host that is most significant.

Before demonstrating these main results with our econometric analysis we present descriptive statistics about the characteristics and outcomes of the different experimental treatments without (Table 2) and with (Table 3) host credibility.

Our individual choice model predicted that 17 of 19 invitees in the credible information condition would end on the separate screen. The actual number was 13. As mentioned earlier, ambiguity aversion was alive and well for invitees facing a host. In these experiments the individual choice model predicted that 84 of the 87 should have ended on the separate screen; however, 19 invitees ended the experiment on the separate screen. Once we adjust for ambiguity aversion the decision theoretic model predicts that fewer than 64 would end on the separate screen (the equivalent proportion as that found in the credibility treatment).¹² These results can be seen graphically in Figure 1 which standardizes the comparison upon the high wage condition.

Note that abilities (as measured in the two minute Stage 1) appear to be drawn similarly for the two treatments. A chi-square test on the difference in proportions between abilities in different wage treatments cannot reject that “abilities” in the low and high wage treatments are drawn from the same distribution. Because the 92-second condition contains some individuals who, given their ability, should not switch, we can conduct the same test including only the subjects from the 215- and 491-second

conditions. We obtain a similar result ($p < .01$).

In our abbreviated hypotheses we suggested that invitees would construct a pessimistic valuation of V over the separate screen due to ambiguity. But, even if ambiguity drives much of the result, can we explain some of the variation with the logic of the decision-theoretic model? We estimated a baseline logit model with dependent variable “end” (whether the invitee ended the experiment on the separate screen) and used “time” and “opportunity cost” as right hand side variables. Opportunity cost is ability multiplied by the wage rate. Because abilities across treatments were, according to a Komolgorov-Smirnov test, drawn from the same distribution, we do not have problems using this important information in the regression. Furthermore, we clustered errors at the group level to account for differences in the persuasiveness of the host. From the baseline logit model “time” is significant at 1 percent while “opportunity cost” is significant at 10 percent. (See Norton & Isaac 2012 for the marginal effects.)

Following our construction of the baseline model we turned to communications from the chat feature. We thought our close examination of host-invitee communication would reveal behavioral or relational explanations about what drove subjects in the ambiguity treatment to end the experiment on the separate screen. For example, some chat we thought could be significant was whether (1) invitees were given the actual value of the separate screen, (2) invitees indicated that they did not know whether

Table 2. Descriptive Statistics for Ambiguity

Treatment	Number of Subjects	Number Predicted to End on Host Screen (If Credible)	Number Ended on Host Screen (Actual)	Percentage Ended on Host Screen (Actual)	Number Ever Switched to Host Screen (Actual)	Percentage Ever Switched to Host Screen (Actual)
Ambiguity W = .05 (92 Sec.)	15	12	1	6.7	1	6.7
Ambiguity W = .05 (215 Sec.)	15	15	4	26.7	7	46.7
Ambiguity W = .05 (491 Sec.)	15	15	8	53.3	8	53.3
Ambiguity W = .10 (92 Sec.)	15	15	0	0	2	13.3
Ambiguity W = .10 (215 Sec.)	12	12	2	16.7	5	41.7
Ambiguity W = .10 (491 Sec.)	15	15	4	26.7	7	46.7

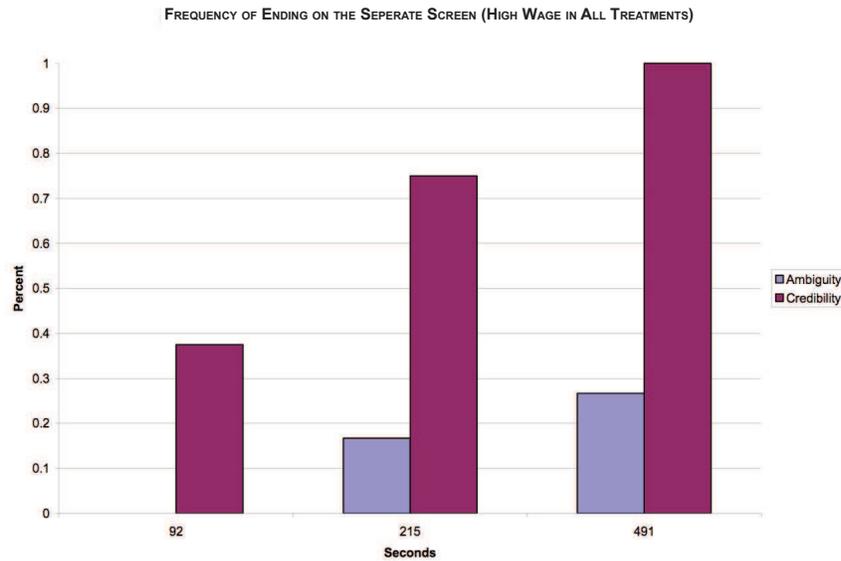
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Table 3. Descriptive Statistics for Credibility

Credibility W = .10 (92 Sec.)	8	6	3	37.5	3	37.5
Credibility W = .10 (215 Sec.)	4	4	3	75	3	75
Credibility W = .10 (491 Sec.)	7	7	7	100	7	100

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Figure 1. Comparison of High Wage Credibility and High Wage Ambiguity



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they could trust the host, and (3) the host proactively communicates justifications for why their representation is truthful. There were several other dimensions in which the chat was coded. In addition to a small number of chat variables we also added “ability” as a separate regressor thinking there might be an independent effect.

The logit regressions using an assortment of binary chat variables (in addition to the baseline variables) did not improve our explanation to the extent we anticipated. However there were three variables that seemed significant. First, we retained “value” even though it was not significant in the regression because it seemed structurally imperative to control for invitees who received explicit and correct information from their host.

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Second, we retained “tunnel vision” which was significant (5 percent) with a large negative magnitude. Tunnel vision occurs when the host communicates to the invitee but the invitee does not respond to the host. Third, we retained the variable “ability” to capture some independent effect and it was significant at 10 percent with a positive sign.

These results suggest that the rational choice framework is powerful for predicting the likelihood of ending on the separate screen. Also, while the presence of particular kinds of chat between host and invitee were not as helpful as we anticipated the absence of chat is quite important.

6. Conclusions

The experiment was designed to provide insight into the Parable of the Great Banquet for modern invitees and we believe that the design and results have accomplished that goal. We provided individuals with two choices: a task with known payment per completion or the banquet with a payment communicated through the host. We found three factors related to attendance or rejection of the banquet: ambiguity aversion, opportunity cost, and tunnel vision. These findings point towards truths that we might already grasp; nevertheless, we enumerate those below.

The finding that the perceived credibility of the host is an important determinant in the invitee’s decision to accept the invitation suggests the important role of doubt in salvation. The first act of the serpent in Genesis is to generate doubt within Eve (Genesis 3:4-6) and there are a host of other examples where it seems doubt leads to poor decision-making (Exodus 32; 1 Samuel 15; Matthew 26:14-16;¹³ etc.).¹⁴ Doubt appears as though it is becoming a more significant obstacle to religious adherence in contemporary times with skepticism and suspicion on the rise (Pew, 2012; Pew 2013).

The finding that opportunity cost is an important determinant in banquet attendance also ought to be quickly apprehended by our readers. Fr. Robert Barron notes that, according to Aquinas, “the four typical substitutes for God are wealth, pleasure, power, and honor. Sensing the void within, we attempt to fill it up with some combination of these four things, but only by emptying out the self in love can we make the space for God to fill us” (Barron, 2011). Either through predispositions, or decisions that have shaped our thoughts and circumstances, each of these four substitutes will be salient to some individuals more than others. The degree to which we cling to these desires determine our willingness to attend the banquet.

Finally, and perhaps most surprisingly (since it did not pertain to a specific treatment), we uncovered the importance of tunnel vision. Recall that tunnel vision happens when the host communicates to the invitee but the invitee does not return a response. The lack of a returned response

could have stemmed from the individual being busy working at the task or having pre-committed to believing that communication was pointless. In either case, the individual has created conditions where a response to the host was more difficult. While diversion is a real problem for the development of an internal life (Pascal, 1901), even important work can sometimes prevent us from giving our attention to the more important things (e.g., Mary and Martha in Luke 10:38-42).

We believe these findings alone are worthy of more contemplation. We have not devoted much inquiry into remedies for these obstacles to salvation. For example, we model neither how an experimental subject nor a modern invitee might transition from a situation of ambiguity (doubt) into a situation of certainty. The crucial question seems to be, “How does one grow in faith?” Soren Kierkegaard, for example, offered one mechanism when he argued that such faith must come through action:

Christ uses only one proof: “If you do my father’s will, he shall know whether the teaching is from God or whether I am speaking on my own authority.” This implies that an action-situation is necessary before the decision of faith can come into existence; it is a venture. It is not a matter of proof first and then the venture. No, first the venture, then the proof (1999, p. 271).

At present our experiment is incapable of testing this mechanism since there is no feedback in the one-shot game for people to act and then gain faith. In general, for us to begin work on the identification of mechanisms to increase faith, devalue competing alternatives, and reduce tunnel vision we would need to have treatments that can disentangle the strengths and weaknesses of the different mechanisms.

Additional questions for an experimental endeavor like the one presented might include (1) restructuring the payment scheme, (2) manipulating available information, and (3) altering or adding communication channels. First, with respect to restructuring the payment scheme, we could have a tournament payment scheme rather than a piece-rate to capture. This could capture the tournament nature in which some people live their lives. Second, interesting informational manipulations would include what we will call (i) temptation and (ii) city on a hill. The temptation treatment could present information to the invitee, when they are on the banquet screen, about how much money they could be earning if they had remained on the task screen. The “city on a hill” treatment could show each invitee (in real time) how many of the fellow invitees have chosen the banquet screen. Third, the communication channels could be altered so that invitees can attempt to recruit or de-recruit each other. These are some of the experimental treatment designs we think could be interesting.

We have presented some novel ideas that enhance understanding of the

Parable of the Great Banquet and the decision that faces modern invitees. The challenges of working through doubt, not becoming too enamored with the world, and finding the stillness in our minds to listen for God are all important for the lives of modern invitees. In addition, we hope others might venture to find inspiration in the parables and stories of the Bible, which teem with insights on human action, for their own research.

Endnotes

- 1 Dr. Vance Rains of the Florida State University Wesley Foundation during a sermon was recalling a saying from his Professor William Jennings of Duke Theological Seminary. Others have made similar statements. For example, specifically with regard to the Parable of the Great Banquet, Armstrong asks “If he came to our dinner table today, would he tell us the same story?” and then follows with, “The heart of the parable lives for all time” (1990, p. 153).
- 2 The hallmarks of the laboratory are creation and control: creation because we can create environments in the laboratory that may not exist in the natural world, and control because we can carefully manipulate the conditions under which decision-making happens. This affords us a good combination where we can attempt to “re-create” the decision situation that the parable represents to help make clean inferences about our manipulations. We use “re-create” in quotations because it is clear that the Parable of the Great Banquet is rich with layers. We do not want to pretend to capture all of the elements of insult, anger, and grace embodied in this parable. But, like all models and experiments, the question will be whether this is a useful abstraction.
- 3 The experimental design and results reported here were published in an *Experimental Economics* article (Norton & Isaac, 2012). That paper was not accepted in the form in which we attempted to motivate the research using the Parable of the Great Banquet. The contribution of the current paper is to cast the *Experimental Economics* publication with its original interpretation and to include elaborations (Sections II, IV, and VI) that were not part of the originally published article.
- 4 See also Bailey (2008).
- 5 The question of who received the initial invitations is interesting; however, there is a great deal of disagreement between scholars that seems to revolve around which aspects of the parable should be interpreted in an allegorical manner. According to Blomberg, determining whether a parable is allegorical or not is “... to ask, does each detail in the ‘earthly’ picture stand for some ‘heavenly’ counterpart? Do any? If so, which ones, and how do we determine their proper referents?” (1990, p. 29). What seems clear to a lay reader

is that numerous allegorical interpretations seem plausible but might be subject to confirmation bias. This last point is well expressed in Young (1998) who critiques an allegorical interpretation of the Parable of the Great Banquet on the basis that, “Allegory may lead in many different directions but often follows the path of the interpreter who is bent on forcing his or her favorite themes upon the parables of Jesus” (1998, p. 184). In the context of this parable, some scholars interpret those invited to the banquet as the Jewish people while others interpret the invited set specifically as the Pharisees or religious leaders (see Blomberg 1990, Young 1998). These differences fall along allegorical and non-allegorical lines. Our comparative advantage is not in the details of whether allegorical interpretations are correct or not; but we attempt to be versed in the arguments to the extent those details inform our experimental design. Most of the action for our purposes of providing insight does not seem to rest in who was invited but the reason invitations were rejected.

- 6 Young (1998) suggests that this is not a reasonable excuse since the invitee accepted the *first* invitation but then pursued marriage in the interim. There were two invitations in the Middle East for banquets like this. The first was to announce there would be a banquet, the second was to let everyone know the banquet was ready.
- 7 The excuses provided in the Gospel of Thomas are somewhat different than those featured in Luke and center more on commerce. As Young writes, “[Thomas’ version] portrays the temptations of tradesmen and merchants who will not have a place in the presence of the Father” (1998, p. 176).
- 8 The tic-tac-toe game is a boredom modifier. Following Engel (2007) who suggested participant behavior could be altered simply due to boredom, we wanted to stem boredom in the laboratory.
- 9 Unlike psychology experiments where participant deception is common, experimental economics generally, and definitely at the XS/FS laboratories where these experiments were conducted, do not use deception. Our participants know this. We have no reason to believe that they did not believe us.
- 10 Other researchers might consider different experimental environments to capture the accept-or-reject behavior of modern invitees. We considered this specific environment because the decision situation captured faith/trust as a sentiment that results in a dichotomous outcome: attendance or absence. In addition, the presence of a real effort task takes time to complete and represents a salient outside option since participants can earn a known (in the sense they know their own ability) amount in expectation (since the end-time is random but the probabilities are known).

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- 11 The “switch” binary was ultimately not significant and not included in the regression. This was not because of the insignificance *per se*, but because the ambiguity in what it represented meant it could not be left in for structural reasons.
- 12 In the credibility treatment, 17 clients were predicted to end on the host screen. The actual number was 13. That proportion (13/17) applied to the ambiguity treatment relevant baseline of 84 yields an alternate prediction of (approximately) 64.
- 13 One interesting interpretation of Judas’ betrayal of Jesus was advanced by Thomas De Quincey and was later expounded by Archbishop Richard Whately of Dublin and Reverend Henry Latham. These scholars hold that Judas doubted Jesus’ plan or willingness to implement the Kingdom of God and therefore made the decision to betray him for strategic purposes (McGuire, 2000).
- 14 In this discourse we do not wish to suggest there is no role for doubt. Indeed, doubt can sometimes be beneficial. Consider for example that Christians are called to discern spirits (1 John 4:1). This insists that some spirits are to be doubted. However, they are doubted against the backdrop of scripture and sacred tradition that are accepted to be credible.

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