Equity Concerns are Narrowly Framed

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Abstract

We show that individuals *narrowly bracket* their equity concerns. Across six experiments including 2,360 subjects, individuals equalize components of payoffs rather than overall payoffs. When earnings are comprised of "small tokens" worth 1 cent and "large tokens" worth 2 cents, subjects frequently equalize the distribution of small (or large) tokens rather than equalizing total earnings. When payoffs are comprised of time and money, subjects similarly equalize the distribution of time (or money) rather than total payoffs. In addition, subjects are more likely to equalize time than money. These findings can help explain a variety of behavioral phenomena including the structure of social insurance programs, patterns of public good provision, and why transactions that turn money into time are often deemed repugnant.

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1 Introduction

Economists have generated a significant and growing body of theoretical and empirical work on individuals' fairness attitudes and preferences over the outcomes of others. This work has taken a variety of forms. Some has focused on the tradeoff between equality and efficiency.[1] Some has focused on notions of fairness from political philosophy, aiming to disentangle whether individuals are concerned with achieving "equality of opportunity" or "equality of outcomes" and whether individuals aim to achieve "equity" or "equality."[2] Some has focused on inequity aversion, demonstrating that individuals care about eliminating inequities between themselves and others.[3] Exploration of these fairness attitudes have generally simplified the decision environment by considering payoffs comprised of a single component (e.g., cash payoffs).[4]

In this paper, we provide robust evidence that this simplification has masked an important feature of fairness attitudes. Individuals *narrowly bracket* their equity concerns. We report results from 2,360 subjects making decisions about the payoffs of two study participants. In our experiments, payoffs are comprised of two components and subjects can only influence one. Subjects frequently equalize payoffs of the component they can influence at the expense of equalizing total payoffs comprised of both components.

In the *Tokens* version of our study, the two components are small tokens (worth 1 cent) and large tokens (worth 2 cents). In 28% to 48% of decisions, subjects choose to equalize the number of small (or large) tokens participants receive instead of equalizing the total amount of money—including both types of tokens—that participants receive. We call this behavior *narrow bracketing* of equity concerns because subjects are aware of participants' endowments of both types of tokens but act as if they only care about equity on the component they can influence.

In the *Money & Time* version of our study, the two components of payoffs are money and time. We explore payoffs of money and time for a few related reasons. First, money and time are the two major components that comprise overall budgets in practice.[5] Second, we hypothesized

[1] See Andreoni and Vesterlund (2001); Andreoni and Miller (2002); Fisman, Kariv and Markovits (2007); Hong, Ding and Yao (2015); and Fisman, Jakiela and Kariv (2015) for laboratory and field survey evidence.

[2] On equality of opportunity vs. equality of outcomes, see for instance Cappelen et al. (2013), Andreoni et al. (Forthcoming), Alesina, Stantcheva and Teso (2018), and Almås, Cappelen and Tungodden (2019). On equity vs. equality, see for instance Charness and Rabin (2002), Engelmann and Strobel (2004), Fehr, Naef and Schmidt (2006), Reuben and Riedl (2013) and Konow, Saijo and Akai (2016). See also a rich theoretical literature on this topic in political philosophy, which considers "equality in resources" (Rawls, 1971; Dworkin, 1981*a*,*b*) and "equality of outcomes" (Roemer, 1986).

[3] Inequity aversion is a well-documented behavioral phenomenon (Rabin, 1998; Fehr and Schmidt, 1999; Bolton and Ockenfels, 2000) that is relevant in diverse settings such as health (Falk et al., 2014), workplace productivity (Breza, Kaur and Shamdasani, 2016), job choice (Card et al., 2012), and parental investment in their children's education (Berry, Dizon-Ross and Jagnani, 2019). Inequity aversion is observed in childhood (Blake and McAuliffe, 2011) and in other species (Roma et al., 2006); has been shown to correlate with charitable giving (Derin-Güre and Uler, 2010); and has been used to model motives for voting for redistribution (Tyran and Sausgruber, 2006), public good provision (Ahn, Ostrom and Walker, 2003), and inefficient divorce (Smith, 2005).

[4] See Konow (2003) and Gaertner and Schokkaert (2012) for surveys of empirical work on distributive justice.

[5] There is literature that measures inequality incorporating both consumption and leisure, such as the cross-

that subjects might care more about achieving equity in time than equity in money. Third, we believed that individuals narrowly bracketing within money and time domains—and being more motivated to achieve equity in the time domain—could help explain a variety of puzzling phenomena. We find that subjects narrowly bracket their equity concerns within the domains of money and time. Subjects equalize money instead of equalizing overall budgets (including both components) in 19% to 41% of decisions. Subjects equalize time instead of equalizing overall budgets in 41% to 66% of decisions. Subjects are more concerned about achieving equity in time than in money and so we say they are more inequity averse in time than in money.

These patterns are remarkably robust. In an additional *Tokens* version and an additional *Money & Time* version of our study, subjects make decisions affecting themselves and another participant (rather than two other participants) and display the same patterns. While we observe selfish behavior that is consistent with self-serving fairness norms as seen in prior literature (Babcock et al., 1995; Konow, 2000; Engelmann and Strobel, 2004; Konow, 2009; Croson and Konow, 2009; Cappelen et al., 2013; Karadja, Mollerstrom and Seim, 2017), we still see narrow bracketing of equity concerns and more inequity aversion in time than in money. Our results are not an artifact of complexity in the decision environment: in an additional *Tokens* version of our study, we reduce the potential role of cognitive limitations, and our results persist. Finally, our results persist in an additional *Money & Time* version of our study in which there is uncertainty in endowments so that equity can only be achieved in expectation.

What are the consequences of narrow bracketing of equity concerns? Individuals' fairness attitudes are important drivers of government policies surrounding redistribution, optimal taxation, and public good provision (Buffett, 2011; Luttmer and Singhal, 2011; Weinzierl, 2014; Charité, Fisman and Kuziemko, 2015; Kuziemko et al., 2015; Weinzierl, 2016; Saez and Stantcheva, 2016), and so achieving equity within narrow brackets at the expense of achieving overall equity can lead to a less equal society. What are the consequences of greater inequity aversion in time than money? More inequity aversion in time than in money may help explain why requests for private provision of public goods often ask for equal amounts of time but different amounts of money, why unions fight particularly vehemently for regimented hours, and why certain actions that turn inequity in money into inequity in time—such as paying for a place in line or paying for early access to an adoptive child or a living donor kidney—are deemed repugnant and may be outlawed (Roth, 2007). While many of these phenomena have other (often well-documented) explanations, we view the potentially broad relevance of narrow bracketing of equity concerns and differential inequity aversion in time and money as promising directions to help parsimoniously

country comparisons of Rawlsian welfare in Jones and Klenow (2016), and literature that documents the importance of jointly considering these components since they are often negatively correlated (Aguiar and Hurst, 2007; Han, Meyer and Sullivan, 2018). However, to our knowledge, prior literature has not focused on how individuals' decisions are influenced by equity concerns, and in particular the potential for narrow equity concerns, over money and time.

model a wide range of seemingly anomalous attitudes and behaviors. We further discuss these implications in Section 5.

Our results also speak to three related literatures. First and foremost, our results contribute to the literature on fairness attitudes and may help explain some conflicting results that have arisen in it. Narrow bracketing of equity concerns can help explain context effects in laboratory work on social preferences (e.g., why subjects might give in a dictator game but not exhibit similar behavior outside the lab, see Bergh (2008); or the malleability of reference groups over which individuals have fairness concerns, see Fisman, Kuziemko and Vannutell (2018) and Bolton, Dimant and Schmidt (2019)); an individual's adoption of both ex-ante and ex-post perspectives of fairness concerns (Trautmann and Wakker, 2010; Andreoni et al., Forthcoming); the prevalence of the 50-50 norm (see Andreoni and Bernheim (2009) and the review in Engel (2011)); and, more generally, why equity concerns may be influenced by factors such as prior choices or performance but need not be.[6]

Second, our results add to significant existing work in behavioral economics on narrow bracketing, which has found that individuals narrowly bracket choices in a variety of domains. Narrow bracketing has been shown to lead individuals to take dominated options (Barberis, Huang and Thaler, 2006; Rabin and Weizsäcker, 2009) and can help explain the equity premium puzzle (Barberis and Huang, 2006) and insurance purchase decisions (Gottlieb and Mitchell, 2015). We show that narrow bracketing not only extends to equity concerns but is a central driver of equity concerns: it can arise in environments as simple as our experiment involving tokens and can arise at the expense of equalizing total payoffs.[7]

Third, we contribute to a growing literature on decisions involving time and how choices differ across the domains of money and time (Lilley and Slonim, 2014; Brown, Meer and Williams, 2016; Shaddy and Shah, 2018).[8] Much of this work shows that individuals display different preferences in time and money domains.[9] Our finding that people are more inequity averse in time than in

[6]Literature documents that subjects ignore prior choices and performance in some settings but that these factors influence fairness attitudes in other settings (Konow, 2000; Cappelen et al., 2007; Krawczyk, 2010; Cappelen et al., 2013; Mollerstrom, Reme and Sørensen, 2015; Akbaş, Ariely and Yuksel, 2016; Gee, Migueis and Parsa, 2017). In addition, a large, related literature examines how "earning the right" (or the entitlement effect) to be a dictator in the dictator game influences generosity (see Hoffman et al. (1994) for early evidence and Engel (2011) for a review) while another paper shows a case where such an entitlement effect is absent (see the ultimatum game in Demiral and Mollerstrom (2018)). Our results suggest that whether certain resources, including earned resources, are subject to fairness concerns may depend fundamentally on whether the decision maker includes those resources in a narrow bracket constructed for the decision environment. The notion of narrow bracketing of equity concerns may therefore help reconcile potentially conflicting results from the literature on fairness attitudes.

[7]Our results are also related to work showing that individuals might narrowly focus on the "medium of exchange" rather than the outcomes it can achieve (Hsee et al., 2003).

[8]Lilley and Slonim (2014) and Brown, Meer and Williams (2016) show that time contributions generate more "warm glow" than money contributions. Shaddy and Shah (2018) shows that individuals believe spending time is a better signal of preferences than spending money.

[9]Davis et al. (2015) documents more prosocial behavior in decisions involving time than money. Gino and Mogilner (2014) find that priming individuals to think of time instead of money leads to more ethical behavior. Liu and Aaker (2008) finds that people give more when first asked to consider a donation of time rather than

money may help to explain some of the surprising differences in behavior across these domains.

The remainder of the paper proceeds as follows. Section 2 presents our main experimental design and Section 3 presents the corresponding results. Section 4 presents the designs and results of our additional study versions and provides evidence that individuals are more inequity averse in time than in money. Section 5 concludes with a broader discussion on how our results speak to a variety of behavior phenomena and empirical findings.

2 Design

In total, we run six different versions of our study. In this section, we describe the design and implementation of the *Tokens* version. In Section 3, we present the results from this *Tokens* version. In Section 4, we describe how the other study versions differ from the *Tokens* version, describe the results from those versions, and highlight what we learn from them.

In the *Tokens* version, subjects make decisions as a social planner, determining the final payoffs for two other study participants. In particular, each subject faces pairs of participants with endowments of "small tokens" and "large tokens" that are known to be exogenously determined. Each small token is worth 1 cent and each large token is worth 2 cents. The first participant in a pair is always endowed with 140 small tokens and 70 large tokens, worth a total of \$2.80 (i.e., \$1.40 in small tokens and \$1.40 in large tokens). The second participant is randomly endowed with one of thirteen combinations of small and large tokens, worth between \$2.00 to \$3.60.[10]

Subjects make two decisions for each of the 13 endowment sets: one in which they must take away small tokens from the participants and one in which they must take away large tokens from the participants. Subjects are told that only one decision out of 26 will be randomly selected for payment. In each small-token decision (see Appendix Figure A.3 for an example screenshot), subjects must take away a total of 80 small tokens (i.e., \$0.80) from the two participants. More specifically, subjects must choose between taking away: (1) 20 small tokens from the first participant and 60 small tokens from the second participant; (2) 40 small tokens from each; or (3)

money. Saini and Monga (2008) observes a greater use of heuristics in decisions involving time than money. DeVoe and Iyengar (2010) shows that, when there are differences in performance across individuals at a company, equal distributions of vacation days are viewed as more fair than equal distributions of money. Other documented differences between time and money include the extent to which time and money investments are considered in bargaining (Ellingsen and Johannesson, 2009), the differential treatment of sunk costs of time and of money (Soman, 2001), differences in loss aversion and risk-seeking behavior when decisions are over time and over money (Leclerc, Schmitt and Dube, 1995; Okada and Hoch, 2004; Abdellaoui and Kemel, 2014; Festjens et al., 2015), differences in discount functions (Olivola and Wang, 2016), differences in how the giving of time versus money is viewed (Reed, Aquino and Levy, 2007; Macdonnell and White, 2015), and even differences in happiness that are associated with time versus money (Mogilner, 2010; Mogilner and Norton, 2016; Whillans, Weidman and Dunn, 2016; Whillans et al., 2017). We note that one important methodological distinction between our work and this literature involves our calibration procedure to ensure units of money are comparable to units of time. We employ this calibration both to examine equity concerns in overall budgets—when aggregating money and time—and to facilitate a comparison of equity concerns in money and time.

[10] In each decision, the second participant is randomly endowed with s small tokens and l large tokens, where $(s, l) \in \{(100, 70), (120, 70), (140, 70), (160, 70), (180, 70), (140, 50), (140, 60), (140, 80), (140, 90), (100, 50), (100, 90), (180, 50), (180, 90)\}$.

60 small tokens from the first participant and 20 small tokens from the second participant. In each large-token decision (see Appendix Figure A.4 for an example screenshot), subjects must take away a total of 40 large tokens (i.e., \$0.80) from the two participants. More specifically, subjects must choose between taking away: (1) 10 large tokens from the first participant and 30 large tokens from the second participant; (2) 20 large tokens from each; or (3) 30 large tokens from the first participant and 10 large tokens from the second participant.

In February 2018, 400 Amazon Mechanical Turk workers completed the *Tokens* version of our study (see Appendix A.1 for screenshots). Prior to making their choices, subjects had to correctly answer several understanding questions on how their choices influenced the payments for the pair of participants. Each subject was then randomized to face the 13 small-token decisions first or the 13 large-token decisions first. Within each set of 13 decisions, the order of the endowments for the second participant was also randomized. After making all 26 decisions, subjects filled out a short demographic survey. Subjects received \$4 for completing the study, and additional payments were distributed from the choice that was randomly selected to count to two future study participants.

3 Results

How do we establish narrow bracketing of equity concerns? First, note that in some decisions subjects can equalize the total payoffs received by the two participants (including both small and large tokens). When they do this, we say they have chosen "Overall Equity" (or "O-equity"). Second, note that in some decisions subjects can equalize the number of small tokens that participants end up with (in small-token decisions) or equalize the number of large tokens participants end up with (in large-token decisions). When they do this, we say they have chosen "Narrow Equity" (or "N-equity").

To ensure that subjects in our study care about equity, we look at settings in which there is no conflict between Overall Equity and Narrow Equity to check that subjects indeed choose equal outcomes. To test whether subjects narrowly bracket their equity concerns, we investigate decisions in which subjects face a conflict between Overall Equity and Narrow Equity. We interpret choices to forgo Overall Equity to achieve Narrow Equity as evidence of narrow bracketing of equity concerns.

One caveat to this approach is that, in all decisions, the middle choice always involves taking an equal number of tokens from each participant, which we call a "50/50-split." Subjects may gravitate towards the 50/50-split because it is in the middle, because they are narrowly bracketing their equity concerns around their personal impact on payoffs (i.e., ignoring endowments altogether), or for some other reason. Because of the multiple interpretations, one may or may not want to consider the 50/50-split as evidence of narrow bracketing of equity concerns. We sidestep this debate by reporting the rate at which subjects choose N-equity rather than O-equity both when the 50/50-split coincides with O-equity and when it coincides with N-equity. The

former is thus a lower bound, and the latter an upper bound, of narrow bracketing of equity concerns. The reader's interpretation of the extent of narrow bracketing observed in our data should fall in this range and depend on the extent to which they interpret choosing the 50/50-split as evidence of narrow bracketing of equity concerns.

Following the logic above, our main results focus on 10 decisions (5 small-token decisions and 5 large-token decisions) grouped into three scenarios described below (see Appendix Table B.1 for an example decision from each of these three scenarios).[11]

In Scenario A, the first and second participants have identical endowments of small and large tokens, so taking the same number of tokens away from both participants achieves O-equity, N-equity, and a 50/50-split.

In Scenario B, the first and second participants have equally valued endowments, but the second participant either has more small tokens and fewer large tokens than the first participant or vice versa. In this scenario, the subject can take away a different number of tokens from the two participants so they end up with the same amount of that type of token, achieving N-equity, or can take the same number of tokens away from both participants, achieving O-equity and a 50/50-split.

In Scenario C, the first and second participants have different endowment values because they have an equal number of tokens of one type and an unequal number of tokens of the other type, and the subject must take away tokens of the type that is initially equal. In this scenario, the subject can take the same number of tokens away from both participants, achieving N-equity and a 50/50-split, or introduce inequity in the type of token they can control to offset the inequity of the other type of token, achieving O-equity.

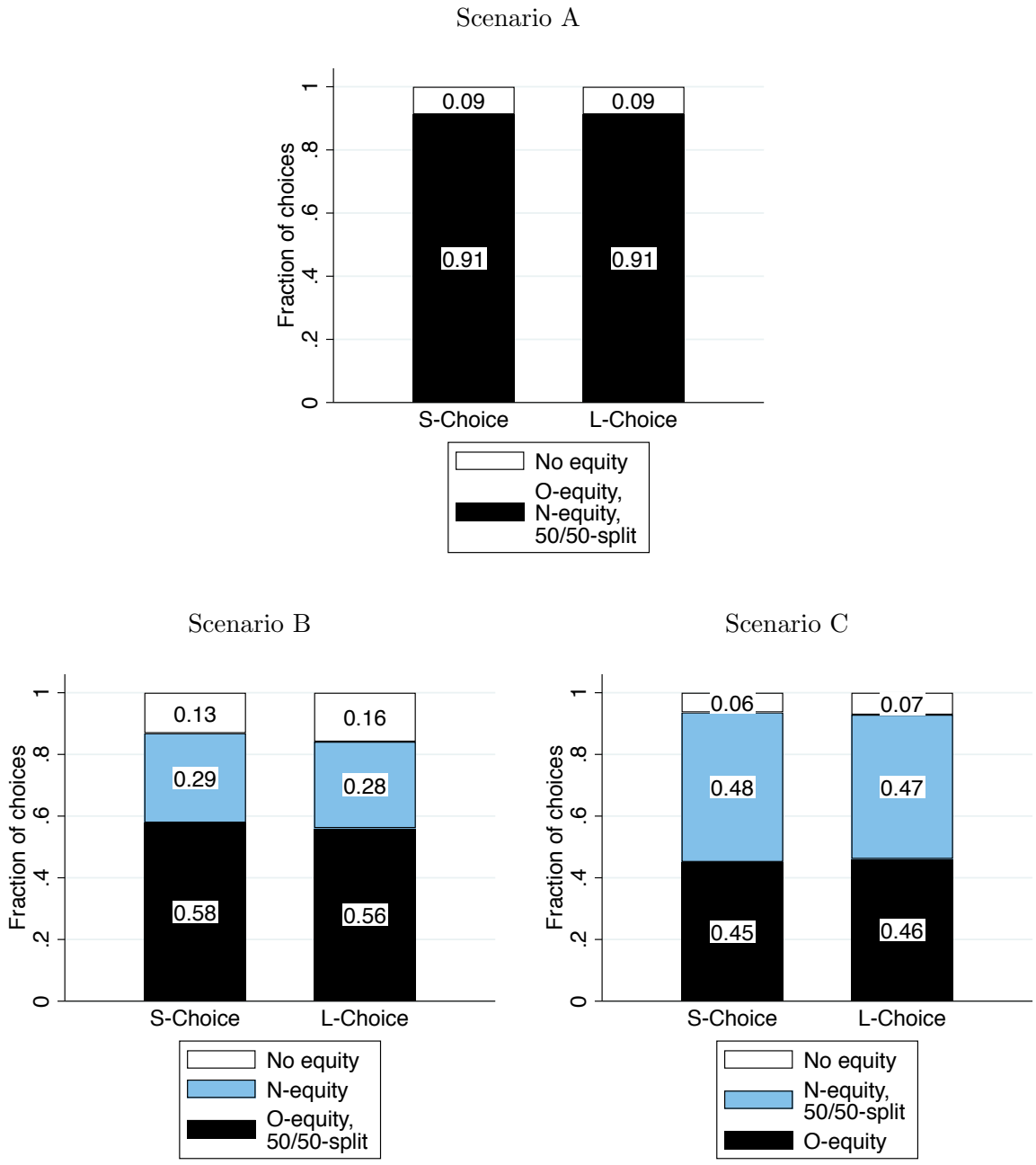
Figure 1 presents the results from these three scenarios. The "S-choice" bars report on small-token decisions and the "L-choice" bars report on large-token decisions. Results from Scenario A (Panel A of Figure 1) show that when the same choice achieves O-equity, N-equity, and a 50/50-split, it is chosen 91% of the time, suggesting strong evidence of equity concerns. Results from Scenarios B and C (Panels B and C of Figure 1) show that subjects often favor N-equity over O-equity. In Scenario B, when N-equity conflicts with O-equity and a 50/50-split, the former is chosen 28–29% of the time and the latter is chosen 56–58% of the time. In Scenario C, when N-equity and a 50/50-split conflict with O-equity, the former is chosen 47–48% of the time and latter is chosen 45–46% of the time. Put differently, subjects narrowly bracket their equity concerns in about one quarter to one half of their decisions.[12]

Table 1 formalizes the results from Figure 1 in a regression framework and confirms that

[11] Appendix Table B.2 shows a more detailed description of these 10 decisions and the additional 16 decisions subjects faced.

[12] These results are also evident on the subject-level: the percentage of subjects who choose N-equity at least once (or at least 50% of the time) is 95% (95%) in Scenario A, 58% (35%) in Scenario B, and 72% (56%) in Scenario C.

Figure 1: *Tokens* version: choices



subjects are more likely to forgo O-equity when it conflicts with N-equity. In particular, Table 1 reports results of a linear probability model of whether a subject forgoes O-equity. Column 1 reports results from small-token decisions and shows that the probability of forgoing O-equity significantly increases by 33 percentage points when N-equity conflicts with O-equity (as in Scenario B) and 46 percentage points when achieving a N-equity and a 50/50-split conflicts with O-equity (as in Scenario C). Column 2 reports results from large-token decisions and shows very similar results. Unsurprisingly, Column 3 confirms that the results hold when we jointly consider

small and large token decisions, and Column 4 shows that the rate at which subjects are willing to forgo O-equity is not substantially different when subjects make small-token or large-token decisions. Finally, Appendix Table B.3 confirms the robustness of the results to the inclusion of subject fixed effects and to focusing on subjects who always choose O-equity in Scenario A.[13] Even in this very simple environment, many subjects narrowly bracket their equity concerns.

Table 1: *Tokens* version: regression results from linear probability models of forgoing O-equity

	Decisions about			
	small tokens	large tokens	small & large tokens	
	(1)	(2)	(3)	(4)
N-equity $\not\Rightarrow$ *O-equity*	0.33***	0.35***	0.34***	0.33***
	(0.02)	(0.02)	(0.02)	(0.02)
N-equity and 50/50-split $\not\Rightarrow$ *O-equity*	0.46***	0.45***	0.46***	0.46***
	(0.03)	(0.02)	(0.02)	(0.03)
L-choice				-0.00
				(0.01)
*L-choice**(*N-equity* $\not\Rightarrow$ *O-equity*)				0.02
				(0.02)
*L-choice**(*N-equity and 50/50-split*) $\not\Rightarrow$ O-equ				-0.01
				(0.03)
Constant	0.09***	0.09***	0.09***	0.09***
	(0.01)	(0.01)	(0.01)	(0.01)
Observations	2000	2000	4000	4000

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors are clustered at the subject-level and shown in parentheses. The results are from a linear probability model of forgoing O-equity. ***N-equity*** $\not\Rightarrow$ ***O-equity*** is an indicator that the choice that achieves N-equity does not achieve O-equity; and ***N-equity and 50/50-split*** $\not\Rightarrow$ ***O-equity*** is an indicator that the choice that achieves N-equity and a 50/50-split does not achieve O-equity. ***L-choice*** is an indicator for large-token decisions. Data are from the decisions of subjects in Scenarios A–C of the *Tokens* version of our study.

4 Additional Designs and Results

In this section, we present the design and results of the five additional study versions. In Section 4.1, we describe the *Tokens, First Person* version that we ran to investigate whether narrow bracketing of equity concerns persist when such narrow bracketing comes at a financial cost to the subject. In Section 4.2, we describe the *Tokens, Final Allocation* version that we ran to investigate whether narrow bracketing of equity concerns persists when the decision environment is even simpler—mitigating a potential explanation based on cognitive limitations. In Section 4.3,

[13] Appendix Figure B.1 reports on data from the other scenarios. Results from Scenario D show that in one-quarter to one-third of choices subjects favor a 50/50-split over the choice that instead achieves O-equity and N-equity. As described above, evidence for a 50/50-split may or may not be interpreted as evidence of narrow bracketing of equity concerns. Regardless, these results contribute to the literature on 50/50-splits as discussed in Andreoni and Bernheim (2009) and Jakiela (2013) and as reviewed in Engel (2011).

we describe results from the *Money & Time* version and two additional versions built off of that version. We ran these versions to investigate whether narrow bracketing of equity concerns arises when considering components of budgets that are particularly relevant outside of the laboratory (i.e., money and time) and to explore whether equity concerns differ across money and time.

4.1 Will subjects pay a cost to narrowly bracket equity concerns?

Design of the *Tokens, First Person* version

The *Tokens, First Person* version of our study is nearly identical to the *Tokens* version except that the subject is assigned the role of the first participant (rather than a third-party social planner). This design gives the subject a financial incentive to choose certain options. The first option is always the least costly (i.e., most self-serving) for the subject as it requires the first participant to give up the smaller share of tokens; the middle (i.e., 50/50-split) option is always slightly more costly for the subject; and the third option is always the most costly for the subject as it requires giving up the larger share of tokens. Implementation details and screenshots are shown in Appendix A.2. We recruited 400 Amazon Mechanical Turk participants to complete the *Tokens, First Person* version in April 2019.

Results of the *Tokens, First Person* version

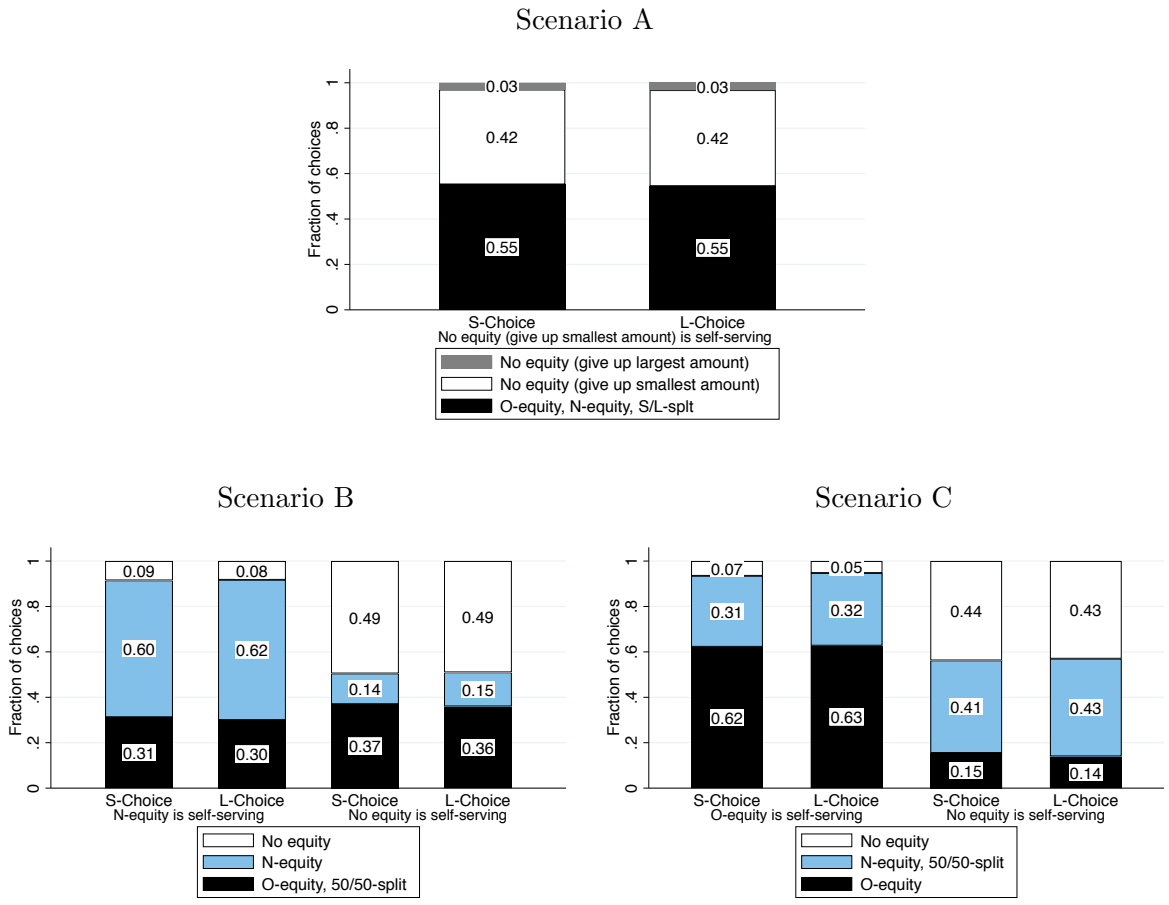
Figure 2 replicates the structure of Figure 1 but splits the data to take into account the role of self-serving motives by noting which choice is the most self-serving.[14] Results suggest that when subjects make choices in the presence of financial incentives, they care equally about achieving N-equity as achieving O-equity. Four comparisons make this equivalence clear.

First, comparing the left two bars of Panel B to the left two bars of Panel C, subjects take the most self-serving action 60–62% of the time when it achieves N-equity and 62–63% of the time when it achieves O-equity. Second, in the left two bars of Panel C, subjects pay a cost to achieve N-equity and a 50/50-split 31–32% of the time; similarly, in the left two bars of Panel B, subjects pay the same cost to achieve O-equity and a 50/50-split 30–31% of the time. Third, comparing the right two bars of Panel B to the right two bars of Panel C, subjects choose the most costly option 14–15% of the time when it achieves either N-equity (Panel B) or O-equity (Panel C). Fourth, in the right two bars of Panel C, subjects pay a cost to achieve N-equity and a 50/50-split 41–43% of the time; in the right two bars of Panel B, subjects pay the same cost to achieve O-equity and a 50/50-split 36–37% of the time (i.e., slightly less often). These results are robust to other approaches to analyzing the data.[15]

[14] Appendix Table B.4 runs the same regression specifications as Table 1, ignoring the role of self-serving motives, and shows that subjects are still significantly more likely to forgo O-equity if it conflicts with N-equity or conflicts with N-equity and a 50/50-split. The results from the additional scenarios from the *Tokens, First Person* version are shown in Appendix Figure B.2.

[15] Appendix Figure B.3 (and Column 3 of Appendix Table B.5) provides an alternative way to take into account the role of self-serving motives by restricting analysis to "equity-concerned" subjects who are willing to pay a cost to achieve equity. These subjects are identified as those who always forgo the self-serving choice in Scenario

Figure 2: *Tokens, First Person* version: choices



4.2 Is narrow bracketing of equity concerns an artifact of cognitive limitations?

One potential explanation from the first two study versions is that subjects narrowly bracket equity concerns because of cognitive limitations. If aggregating payoffs across multiple dimensions is too cognitively demanding for subjects, they may instead focus on equalizing one dimension of payoffs only. Our prior study versions provide some evidence against subjects being cognitively constrained in this way. First, as shown in Appendix Figure A.2, prior to making their decisions, all subjects must answer understanding questions that require knowing how much each small token and each large token is worth and require correctly reporting the number of tokens a subject will end up with given an endowment and a choice that reduces payoffs. Second, results from the *Tokens, First Person* version show that narrow bracketing of equity concerns persists even when cognitively constrained subjects could simply choose the self-serving option (which is

A in favor of the choice that maintains the existing equity (i.e., they always choose to achieve O-equity, N-equity and a 50/50-split, even though it comes at a cost to themselves). Focusing on these subjects ensures that we are exploring the equity concerns of people who particularly value equity. Among these equity-concerned subjects, evidence in favor of narrow equity concerns is even stronger.

cognitively simple to identify and is more financially beneficial) in every decision. Nevertheless, to further examine whether narrow bracketing of equity concerns is an artifact of cognitive limitations, we designed and ran the *Tokens, Final Allocation* version of our study.

Design of the *Tokens, Final Allocations* version

The *Tokens, Final Allocation* version of our study is built on the *Tokens* version but with three differences that seek to limit the potential role of cognitive limitations (see Appendix A.3 for implementation details and screenshots).

First, rather than making adjustments to endowments, subjects in the *Tokens, Final Allocation* version make decisions over "final allocations," which requires fewer mathematical computations. In particular, instead of taking away tokens from existing endowments, subjects simply choose the final number of tokens each participant ends up with.[16]

Second, to be able to examine whether subjects make different decisions as third-party social planners after getting experience making the same decisions under financial incentives, we have each subject in the *Tokens, Final Allocations* version make 10 decisions (i.e., 5 small-token decisions and 5 large-token decisions) once in the role of a third-party social planner (as in the *Tokens* version) and once in the role of first participant (as in the *Tokens, First Person* version). For each subject, we randomize: whether the subject makes social-planner or first-person decisions first, whether the subject makes the small-token or large-token decisions first, and the order of decisions within each set of five.

Third, prior to making choices in this study, subjects are asked three screening questions that require them to correctly report the monetary value of: (1) 50 small tokens, (2) 100 large tokens, and (3) the sum of 140 small tokens and 40 large tokens. Subjects who answer any of these questions incorrectly are screened out of our study and do not participate.[17] We recruited 400 Amazon Mechanical Turk to complete the *Tokens, Final Allocation* version of our study in March 2019. A total of 340 subjects correctly answered the screening questions and completed this version of the study.

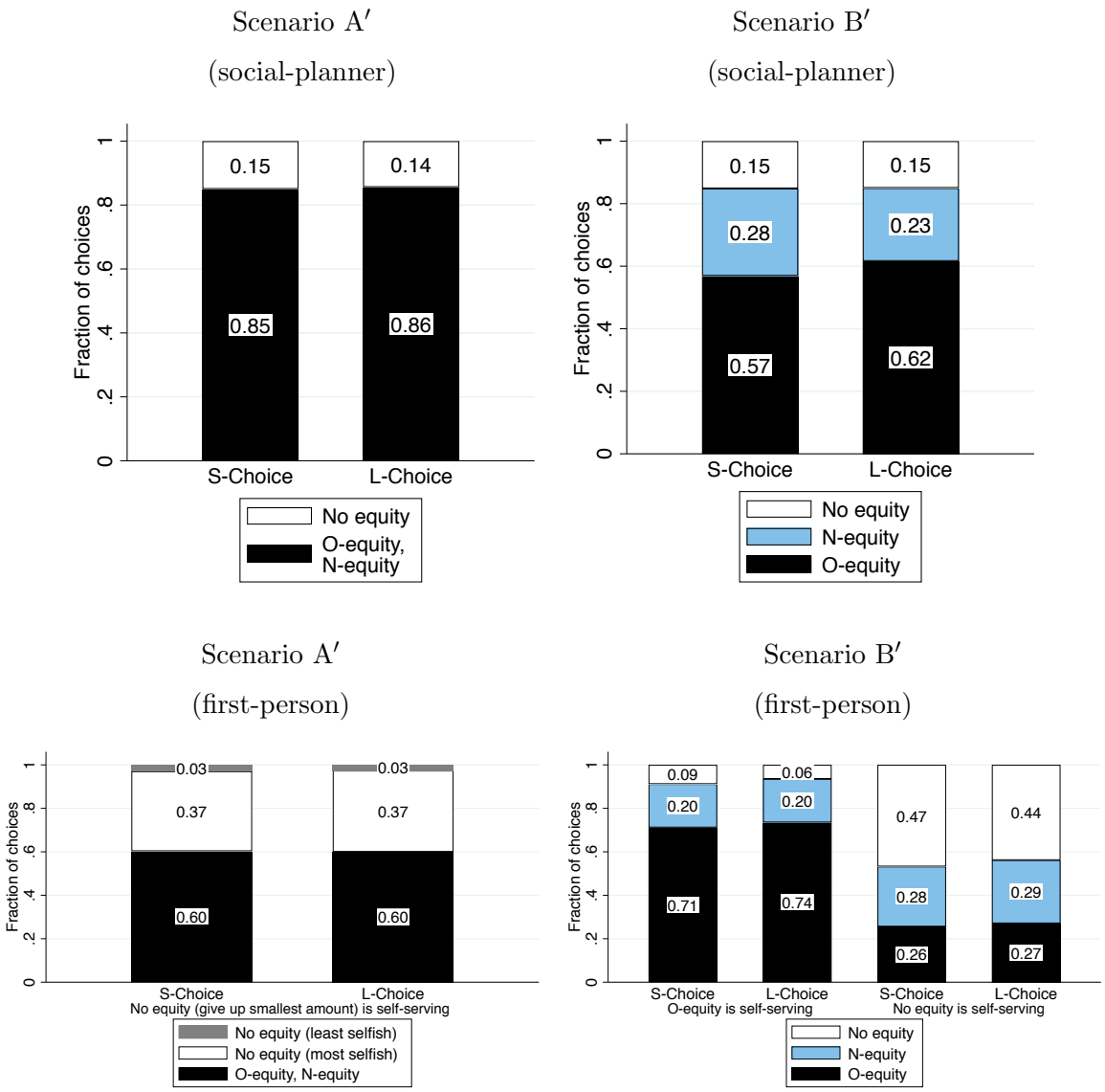
[16]In each small-token decision, the first participant is always endowed with 70 large tokens while the second participant is randomly endowed with either 50, 60, 70, 80, or 90 large tokens. Subjects must choose to give: (1) 120 small tokens to the first participant and 80 small tokens to the second participant; (2) 100 small tokens to each; or (3) 80 small tokens to the first participant and 120 small tokens to the second participant. In each large-token decision, the first participant is always endowed with 140 large tokens while the second participant is randomly endowed with either 100, 120, 140, 160, or 180 small tokens. Subjects must choose to give: (1) 60 large tokens to the first participant and 40 large tokens to the second participant; (2) 50 large tokens to each; or (3) 40 large tokens to the first participant and 60 large tokens to the second participant. Appendix Table B.6 shows additional details.

[17]Subjects who are screened out only receive a $1.50 completion payment whereas subjects who answer all of these questions correctly make 20 choices and receive a $3.00 completion payment. The difference in completion payments—$1.50 versus $3.00—is known to subjects when they are answering the screening questions. Subjects who are screened into our study may also receive a bonus if the randomly selected decision is one of the decisions when the subject is in the role of the first participant.

Results of the *Tokens, Final Allocations* version

Figure 3 shows results from the social-planner decisions in the top two panels and the first-person decisions in the bottom two panels for the scenarios in which O-equity can be achieved.[18] For the first-person scenarios, decisions within each scenario are further split based on which choice is self-serving. Since subjects are directly choosing final allocations of tokens rather than subtracting tokens, achieving a 50/50-split and N-equity are synonymous. Thus, we no longer separately consider the role of a 50/50-split and only show results from two scenarios.

Figure 3: *Tokens, Final Allocation* version: choices



Beginning with the social-planner decisions, the results in Scenario A′ show that the vast majority (85%) of choices involve achieving both N-equity and O-equity when the same choice

[18] Appendix Figure B.4 presents results from the scenarios in which O-equity cannot be achieved.

achieves both. The results in Scenario B′ show that even in this dramatically simpler decision environment, subjects favor N-equity over O-equity about one-quarter of the time. As can be seen by comparing decisions in Scenarios A′ and B′ or in the regression results in Appendix Table B.7, the rate at which subjects choose O-equity decreases by 26 percentage points when it conflicts with N-equity. Finally, as shown in Column 4 of Appendix Table B.8, this effect size does not substantially decrease (it is still 24 percentage points) when subjects make social-planner decisions after they make first-person decisions (i.e., after they have experience in the decision environment with their own money at stake). In sum, even when the potential role of cognitive limitations is dramatically reduced—due the existence of screening questions, a simplification of the decision environment, and experience from making the same decisions with one's own money is at stake—subjects still narrowly bracket equity concerns.[19]

We additionally see narrow bracketing of equity concerns in first-person decisions in this simpler environment. As can be seen in Scenario B′, even when achieving O-equity is self-serving, subjects will pay a financial cost to achieve narrow equity approximately 20% of the time, and this rate increases further when O-equity is not self-serving.[20]

4.3 Does narrow bracketing of equity concerns arise over money and time?

To investigate whether evidence for narrow bracketing of equity concerns arises over money and time—components of budgets that are particularly relevant outside of the laboratory—and to explore whether individuals have different equity concerns within these two domains, we ran three *Money & Time* versions of our study. In this subsection, we first describe the *Money & Time* version and how it differs from the *Tokens* version. After describing the design and results of this version, we provide additional results on robustness and describe the design and results of the remaining two versions: the *Money & Time, First Person* version and the *Money & Time, Uncertain Endowments* version.

Design of the *Money & Time* version

The *Money & Time* version is very similar to the *Tokens* version of the study, with subjects in the role of social planner making decisions that affect two study participants with exogenously determined endowments of money and time. The first participant always has a fixed endowment and the second participant's endowment takes one of 13 possible combinations of money and

[19] Considering the restriction to equity-concerned subjects (i.e., subjects who always choose O-equity in Scenario A′) results in an even larger effect size of 34 percentage points, as shown in Column 5 of Appendix Table B.8. This effect can be seen more broadly in Appendix Figure B.5.

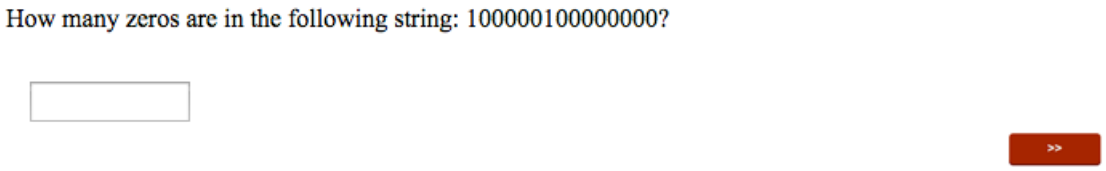
[20] The regression results in Appendix Table B.7, ignoring the role of self-serving motives, show that the overall frequency with which O-equity is chosen significantly decreases by 11 percentage points when N-equity conflicts with it. Moreover, focusing on the equity-concerned subjects who are willing to pay a cost to achieve equity results in a substantially larger effect size of 47 percentage points, as shown in Column 5 of Appendix Table B.8. This effect can be seen more broadly in Appendix Figure B.5.

time. Subjects make two decisions for each endowment set, once when they decide about taking away money from the participants and once when they decide about taking away time from the participants. We randomly determined whether each subject made time or money decisions first and the order of the decisions within each set of 13.

Of course, going from the *Tokens* version to the *Money & Time* version requires two fundamental experimental design changes. First, to use time as one of the components of payoffs, we need a way to control participants' time in our study. Second, we need to establish an exchange rate between money and time so that subjects are able to aggregate them into total payoffs, and so we can be confident that total payoffs aggregated in this way can be set equal to each other to achieve O-equity.[21]

First, to manipulate the amount of time participants have in our study, we require participants to complete a particular number of "time-burning" tasks to receive any payment from participating in the study. Completing one time-burning task requires correctly counting how many times "0" appears in a string of 15 numbers that are each either a "0" or a "1" (see Figure 4 for an example task). We see this task as an ideal way of imposing a time cost as these tasks: (1) take time, (2) must be done to complete the study, and (3) do not allow participants to engage in other activities while they are being completed. Moreover, just as we can take away money from endowments, we can take away time by increasing the number of tasks they must do to complete the study.[22]

Figure 4: Screenshot of example time-burning task



Second, to establish an exchange rate between money and time, we ask each subject—using incentivized multiple price lists—the amount of money that they view as equivalent to doing a certain number of time-burning tasks. We make a number of decisions and assumptions in designing these multiple prices lists, and we highlight the most important ones in the following paragraph. For more detail, see Appendix C, which provides a thorough discussion on how we

[21] Note that in the *Tokens* versions of the study, we explicitly set the exchange rate between small and large tokens to be 2-to-1, which allows subjects to easily aggregate up to total payoffs.

[22] That taking away time in our study is achieved by having participants do tasks means that one could interpret time in our study as "time spent working" or, alternatively, just "work." We are quite happy with these alternative interpretations, since work is a major use of time and an important one in contributing to overall budgets. Many of the phenomena that we believe narrow bracketing can help explain, discussed in depth in the Section 5, are explicitly about money and work.

establish these exchange rates in a manner similar to our prior work (Exley, 2015, Forthcoming; Exley and Kessler, 2018).[23]

Since subjects are in the role of social planner deciding about the payoffs of other participants, they perform the multiple price lists on behalf of the first participant rather than themselves (i.e., we ask them to choose how much money the first participant should give up to avoid doing additional time-burning tasks). We have each subject make their own evaluations and then use these personalized exchange rates for all of their decisions in the study, and we apply the same exchange rate for the first and second participant.[24] We ask subjects to report how much money the first participant should be willing to give up to avoid doing 10 additional tasks, 30 additional tasks, and 50 additional tasks. We use the first and third values (i.e., for 10 and 50 tasks) to determine the exchange rate in one of two ways (and show our results are robust to both ways). We impose a linearity assumption when considering how subjects should value doing 30 additional tasks (and confirm that our results are robust to participants with linear, concave or convex cost of additional tasks based on their answer to the multiple price list for the 30 additional tasks). Finally, 25% of subjects do not report a strictly positive value for the first participant's time and are excluded from our main analysis (but we show that our results are robust to including them).

We recruited 400 Amazon Mechanical Turk participants to take the *Money & Time* version of the study between April and June of 2016. Appendix A.4 shows further implementation details and screenshots.

Results of the *Money & Time* version

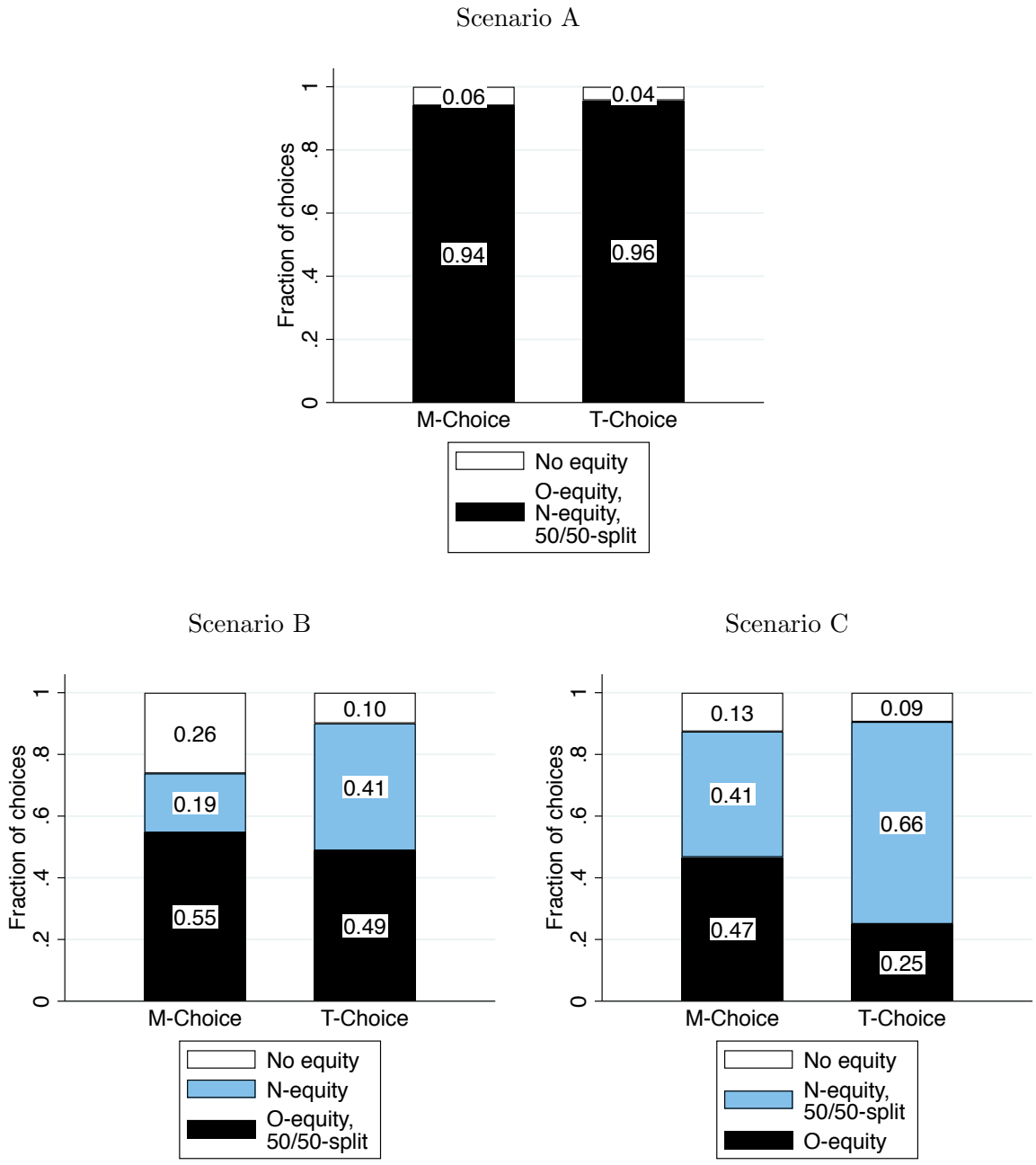
Figure 5 presents the results from the same three scenarios as we analyzed in the *Tokens* version (see Appendix Table B.9 for details on these scenarios and the other scenarios in this version). The bars highlight how often the subjects choose O-equity (i.e., so that total budgets, accounting for both money and time, end up equal) and how often they choose N-equity (i.e., so that participants end up with the same number of cents in money decisions or the same number of tasks to complete in time decisions). The "M-choice" bars report on money decisions and the "T-choice" bars report on time decisions.

The results from Scenario A (Panel A of Figure 5) show that when initial endowments are

[23]While there is complexity built into calculating these exchange rates, we view doing so as an important step towards understanding how fairness attitudes differ between money and time. Absent this calibration exercise, a natural explanation for differences between money and time could be that participants value the available amounts of money and time differently. Thus, while this calibration exercise may have limitations, we view it is as notable improvement upon prior literature that compares money decisions to time decisions and instead has either: (1) not considered the need for money-time exchange rates or (2) defined the money-time exchange rate to be some fixed value (and thus does not account for the possibility that individual subjects' valuations of the involved units of money differ from their valuations of the involved units of time).

[24]That is, we allow each subject to have a different belief about how participants should trade off time-burning tasks and money—since subjects may differ in their views of how time intensive or difficult the time-burning tasks are in general—but we do not allow a subject's belief to differ across anonymous study participants.

Figure 5: *Money & Time* version: choices



identical, subjects choose to achieve O-equity, N-equity, and a 50/50-split in 94% of the money decisions and in 96% of the time decisions. As can be seen from Scenarios B and C (Panels B and C of Figure 5), evidence for narrow bracketing of equity concerns clearly extends to the domains of money and time. When considering money decisions, subjects forgo O-equity to achieve N-equity between 19% (from Panel B, a lower bound) and 41% (from Panel C, an upper bound) of the time. Meanwhile, when considering time decisions, we see even more evidence of subjects narrowly bracketing equity concerns. Subjects forgo O-equity to achieve N-equity between 41%

(from Panel B, a lower bound) and 66% (from Panel C, an upper bound) of the time. This stark difference between money and time decisions suggests that subjects are more concerned about achieving equity in the narrow bracket of time than in the narrow bracket of money: they are more inequity averse in time than in money.[25]

Table 2 formalizes the results from Figure 5 in a regression framework. Table 2 shows that the likelihood that a subject forgoes O-equity significantly increases when a different choice achieves N-equity or both N-equity and a 50/50-split. Column 1 shows results from money decisions, Column 2 shows results from time decisions, and Column 3 shows results from both money and time decisions. Column 4 confirms the significant differences across money and time decisions and that subjects are more inequity averse in time than in money. For instance, the coefficient on *T-choice*(N-equity and 50/50-split* $\not\Rightarrow$ *O-equity)* in Column 4 shows that, subjects in time choices are 23 percentage points more likely than subjects in money choices to forgo O-equity when a different choice achieves N-equity and a 50/50-split.

Table 2: *Money & Time* version: regression results from linear probability models of forgoing O-equity

	Decisions about			
	money	time	money & time	
	(1)	(2)	(3)	(4)
N-equity $\not\Rightarrow$ *O-equity*	0.39***	0.47***	0.43***	0.39***
	(0.03)	(0.02)	(0.02)	(0.03)
N-equity and 50/50-split $\not\Rightarrow$ *O-equity*	0.47***	0.71***	0.59***	0.47***
	(0.03)	(0.02)	(0.02)	(0.03)
T-choice				-0.02
				(0.01)
T-choice(N-equity* $\not\Rightarrow$ *O-equity)*				0.07***
				(0.03)
T-choice(N-equity and 50/50-split)* $\not\Rightarrow$ O-equ				0.23***
				(0.03)
Constant	0.06***	0.04***	0.05***	0.06***
	(0.01)	(0.01)	(0.01)	(0.01)
Observations	1510	1510	3020	3020

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors are clustered at the subject-level and shown in parentheses. The results are from a linear probability model of forgoing O-equity. ***N-equity*** $\not\Rightarrow$ ***O-equity*** is an indicator that the choice that achieves N-equity does not achieve O-equity; and ***N-equity and 50/50-split*** $\not\Rightarrow$ ***O-equity*** is an indicator that the choice that achieves N-equity and a 50/50-split does not achieve O-equity. ***T-choice*** is an indicator for time decisions. Data are from the decisions of subjects—with accurately estimated exchange rates—in Scenarios A–C of the *Money & Time* version of our study.

Appendix Table B.10 confirms the robustness of these results. Column 1 replicates Column 3

[25] Appendix Figure B.6 shows results from the other scenarios and highlights that the differential preference for achieving equity in time is driven by concerns about N-equity rather than the 50/50-split. Preference for the 50/50-split seems identical across the money and time domains as shown in Scenarios E and G.

of Table 2. Column 2 includes subject fixed effects. Columns 3 to 5 separately examine subjects whose reports on the multiple price lists suggest linear, concave, or convex costs of the first participant completing additional tasks. This robustness check examines whether our result of more inequity aversion in time than in money is driven by subjects believing that participants face convex costs of time (or of completing tasks) and therefore want to equalize the number of tasks assigned to each participant for efficiency reasons. That our evidence of more inequity aversion in time than in money persists among subjects whose preferences over the first participant doing additional tasks are linear, concave, and convex demonstrates that this is not a key motivation for why subjects equalize time across participants. Columns 6 and 7 split out subjects based on the two ways we turned multiple price list responses into money-time exchange rates, as described in Appendix C. Column 8 includes subjects who were randomly assigned exchange rates.

Robustness of our *Money & Time* results

Three additional sets of results—one from the *Money & Time* version and two from other study versions—demonstrate the robustness of narrow bracketing of equity concerns over money and time and of more inequity aversion in time than in money.

Our first set of additional results come from an additional design feature of our *Money & Time* version. In addition to choosing how much money or time to take from each participant, subjects were asked to indicate the social appropriateness of making each choice on a 4-point scale from "very socially inappropriate" to "very socially appropriate"' (see Appendix Figure A.23 for an example of this decision screen). Following the procedure in Krupka and Weber (2013), subjects were told that one potential choice from one decision would randomly be selected for payment and that they would receive a $1.00 bonus for correctly reporting the modal social appropriateness response for that choice. Appendix Figure B.7 and Appendix Table B.11 confirm the robustness of our results to this alternative measure that provides monetary incentives to carefully consider the social appropriateness of each choice.[26]

Our second set of additional results come from our *Money & Time, First Person* version. Decisions in the *Money & Time, First Person* version are the same as in the *Money & Time* version of our study, but the subject making the decisions is also the first participant and thus has self-serving reasons to choose certain options (see Appendix A.5 for implementation details and screenshots). We recruited 400 Amazon Mechanical Turk participants to take the *Money & Time, First Person* version of the study in August of 2017. Appendix Figure B.9 follows the structure of Figure 2 from the *Tokens, First Person* version and shows that even in the presence of self-serving motives, subjects still narrowly bracket their equity concerns over money and time and are still more inequity averse in time than in money.[27]

[26] Appendix Table B.10 shows additional robustness tests using the social appropriateness responses and Appendix Figure B.8 shows appropriateness results from the other scenarios.

[27] Appendix Table B.13 shows results following the analysis in Appendix Table B.4. Appendix Figure B.10 shows results from the other scenarios. Moreover, Column 9 of Appendix Table B.14 shows that focusing on the

Our third set of additional results come from the *Money & Time, Uncertain Endowments* version, in which O-equity and N-equity cannot be achieved with certainty and instead can only be achieved in expectation. More specifically, the endowments in this version build off of the set of endowments in the *Money & Time* version in which endowments are equal on one or more dimension (i.e., Scenarios A and C). The uncertain version alters these endowments to introduce uncertainty on a dimension that is initially equal, so that it is now only equal in expectation (see Appendix Table B.15 for details of the resulting scenarios and see Appendix A.6 for implementation details and screenshots). We recruited 400 Amazon Mechanical Turk participants to take the *Money & Time, Uncertain Endowments* version of the study between April and June of 2016. Appendix Figure B.12 and Appendix Table B.16 show that our main results are robust to the setting with uncertainty.[28] Subjects still narrowly bracket their equity concerns and are still more inequity averse in time than in money even when N-equity and O-equity can only be achieved in expectation.

5 Conclusion

The results in this paper demonstrate that individuals narrowly bracket their equity concerns both when making decisions over arbitrary components of payoffs (i.e., small and large tokens) and when making decisions over important and common components of payoffs (i.e., money and time). Results from the latter setting additionally document that individuals are more inequity averse in time than in money.

To conclude, we elaborate on how our findings relate to the broader literature and highlight that narrow bracketing of equity concerns and more inequity aversion in time than in money can explain myriad phenomena observed in practice. In doing so, we do not suggest that our results are the only explanation for these phenomena. Many of the phenomena we discuss have other explanations that are already well documented from both inside and outside of economics.[29] Instead, we emphasize that narrow bracketing of equity concerns and more inequity aversion in time than in money are parsimonious explanations for these rather diverse patterns, which are otherwise difficult to rationalize, suggesting that our explanation may have widespread predictive power and prove useful for modeling such patterns of behavior.

Our finding that equity concerns are narrowly framed helps explain the context effects that have been observed across settings exploring fairness attitudes. For example, that individuals narrowly bracket equity concerns may help explain why individuals behave differently when

equity-concerned subjects who are willing to pay a cost to achieve equity produces results of similar magnitude to those observed in the *Money & Time* version of our study in which the decision-makers are social planners without any self-serving motives.

[28] Appendix Figure B.13 shows results from the additional scenarios and Appendix Table B.17 shows additional robustness checks.

[29] For instance, relevant discussions may include the discussion of "taboo tradeoffs" in Psychology (Fiske and Tetlock, 1997), the discussion of the"ethic of the queue" versus the "ethic of the market" in Philosophy (Sandel, 2012), and the discussion of "sacred values" in economics Elias, Lacetera and Macis (2015*b*).

faced with a dictator game in the lab—in which the dictator and recipient are narrowly framed together—than when considering distributional concerns with individuals outside the lab.[30] This phenomenon may also help explain why a charitable giving appeal that creates an "identifiable victim" (Jenni and Loewenstein, 1997; Small and Loewenstein, 2003) can generate additional giving, since it may effectively frame an individual with that victim. In this light, one can consider charitable giving appeals more broadly as an attempt to manipulate the frame around which individuals' equity concerns are active.

That individuals narrowly bracket equity concerns may also help to explain why work requirements are part of social insurance programs, such as the Temporary Assistance for Needy Families (TANF) program and the earned income tax credit (EITC). Comparing TANF and the EITC to social insurance programs that do not require recipients to work, TANF and EITC decrease the leisure time and increase the income of beneficiaries. Consequently, these policies eliminate inequity between program recipients and the average voter on both the time and money dimensions.[31] Similarly, other social programs that provide income or in-kind support also often have associated time costs (Sunstein, Forthcoming).[32]

That individuals are more inequity averse in time than in money is potentially relevant to understanding labor market outcomes, the structure of public good provision, and why some transactions that turn money into time may be deemed repugnant. Beginning with labor market outcomes, we note that a 40-hour work week is a well-established norm across workers and across industries.[33] Inside the ivory tower, teaching loads are likely very similar, if not identical, across faculty whose salaries differ. Even committee responsibilities are viewed more favorably when equally distributed. These norms further extend to the household, where—despite any differences in contributions towards the household's financial budgets—equal contributions of household chores are believed to be appropriate if both partners spend equal amounts of time working outside the home.[34]

[30] See Bergh (2008) for a discussion of this phenomenon and a broader critique of inequity aversion.

[31] Negative marginal tax rates that incent work, like those induced by the EITC, are hard to justify for redistributive reasons (Jacquet, Lehmann and Van der Linden, 2013). There are, of course, other potential benefits to incentivizing work such as screening and deterrence (Besley and Coate, 1992) as well as overcoming a behavioral bias (Lockwood, 2016).

[32] Sadoff and Samek (2017) finds that voter support for a social program can increase by requiring recipients to contribute a large amount of time but not by requiring participants to contribute a large amount of money.

[33] Historically, unions fought for fixed, equal hours for their members, or effectively discouraged firms from variation by demanding high rates for overtime pay (Earle and Pencavel, 1990). In tough economic times, unions use work-sharing rules (e.g., cutting hours equally) so that all workers would suffer the same consequences in hours, even if their hourly wages differed.

[34] We ran a Google Consumer Survey (March 2017, n = 211) that asked: "Imagine a married couple where both individuals work the same number of hours outside of the household. Should the spouse who earns less money have to do more housework?" 83% responded "no" and 17% responded "yes." However, unequal contribution of household work is reported as appropriate if one partner does not work outside the home and thus has more time to work inside the house. We ran a Google Consumer Survey (March 2017, n = 201) that asked "Imagine a married couple where only one individual works outside of the household. Should the spouse who does not work outside of the household have to do more housework?" 64% responded "yes" and 36% responded "no."

Turning next to the provision of public goods, we note that solicitations often call for equal contributions of time but unequal contributions of money. Citizens are equally likely to be called for jury duty and must spend equal amounts of time going to the polls, but taxes differ dramatically. Schools and churches might ask richer parents or congregants for larger monetary donations but still ask for equal volunteering hours.[35] This pattern may contribute to the "volunteering puzzle," or the phenomenon that many high-income individuals spend time volunteering for tasks that generate less value than the money they could earn in the labor market and subsequently donate (Handy and Katz, 2008; Lilley and Slonim, 2014).

Finally, more inequity aversion in time than in money may naturally lead individuals to deem repugnant—and to protest against—transactions that allow others to turn inequity in money into inequity in time.[36] A prime example of turning inequity in money into inequity in time, paying for a place in line—common at amusement parks, public events, hospitals, the airport, and even U.S. Supreme Court hearings—is often met with outrage. Similarly, it is the "thought that counts" in gift giving, and social mores frequently deem cash gifts inappropriate (Tuttle, 2011). Some transactions that would allow individuals to turn inequity in money into inequity in time are even prohibited, such as an organ transplant that could add years to a recipient's life but cannot be legally purchased.[37]

One related question, which we leave for future work, is why equity concerns differ across the domains of time and money. On this point, we speculate that part of the effect might be driven by differential beliefs in the existing levels of inequity of money and time. Inequity in money is more obvious and observable than inequity in time.[38] It is very clear that some people are born rich and others are born poor, and the persistence of socio-economic status from birth to adulthood is a well-established empirical fact (Chetty et al., Forthcoming). Meanwhile, inequity in time is less obvious (e.g., everyone has 24 hours in a day), less observable (e.g., life length is unknowable), and, perhaps correspondingly, less acceptable.

[35] In 2008, the Church of Jesus Christ of Latter Day Saints began asking congregants to clean the church buildings, sometimes assigning individuals to volunteer in alphabetical order, even though it previously used congregant donations to pay janitorial staff to do the same job (Evans, Curtis and Cnaan, 2013).

[36] Negative attitudes towards such transactions are relatively widespread (Leider and Roth, 2010) even though they have been shown to be correlated with happiness (Whillans, Weidman and Dunn, 2016; Whillans et al., 2017). Repugnance arises when a third party prefers that a transaction between others not occur and may thus place a constraint on markets (Roth, 2007). See Roth (2015) for a popular discussion and see a growing literature on what causes transactions to be repugnant (Leider and Roth, 2010; Falk and Szech, 2013; Slonim, Wang and Garbarino, 2014; Ambuehl, Niederle and Roth, 2015; Elias, Lacetera and Macis, 2015*a*,*b*; Ambuehl, 2016).

[37] Living donors cannot be compensated for kidneys and the allocation of deceased donor organs is heavily regulated through waiting lists that do not include a price mechanism.Substantial research is devoted to attempting to increase the supply of organs, see, e.g., Kessler and Roth (2014).

[38] While the opportunity cost of time, available leisure time, and life expectancy may vary widely across individuals, these differences may be harder to observe. Individuals may believe that time is more equally distributed than money, which may contribute to why individuals deem contributions of time as a better signal of preferences than contributions of money (Shaddy and Shah, 2018).

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APPENDICES (FOR ONLINE PUBLICATION ONLY)

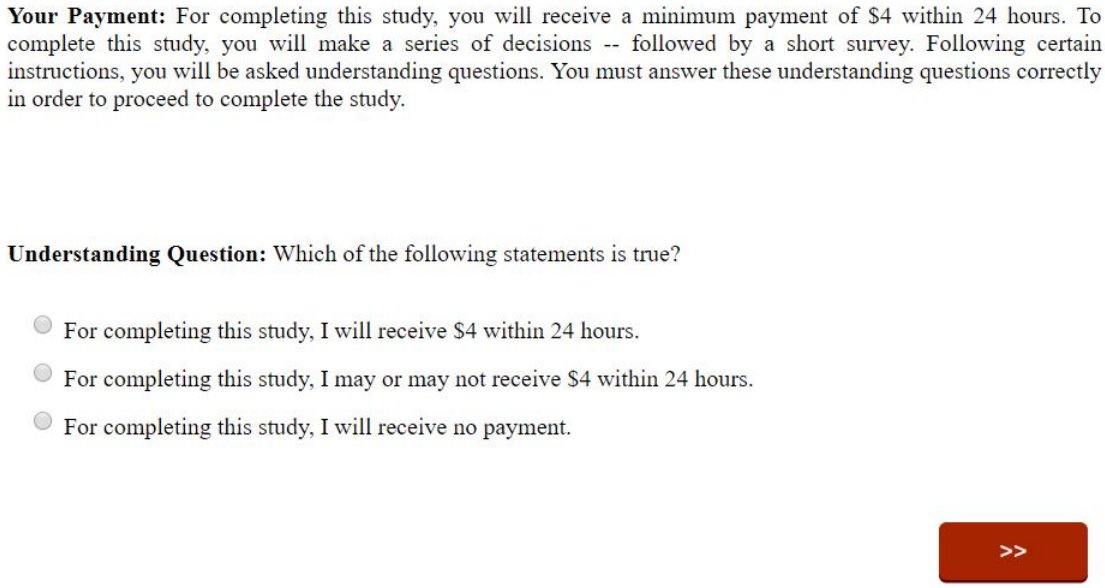
A Experimental Instructions

The study has six versions. Section A.1 presents the full instructions of the *Tokens* version, while Section A.2 details the relative differences in the *Tokens, First Person.* Section A.3 presents the full instructions of the *Tokens, Final Allocations* version. Section A.4 presents the full instructions of the *Money & Time* version, while Section A.5 details the relative differences in the *Money & Time, First Person* version and Section A.6 details the relative differences in the *Money & Time, Uncertain Endowments* version.

A.1 Experimental Instructions: The *Tokens* version

After consenting to participate in the study, subjects are informed of the $4 study completion fee and of the opportunity to earn additional payment. Figure A.1 shows how this payment information is explained and the corresponding understanding question that each subject must answer correctly in order to proceed.

Figure A.1: Payment Information



The subjects then proceed to the study instructions. The subjects learn that they will make decisions for a future study involving two participants who are called their "first participant" and their "second participant." In particular, the subjects learn that they will have to choose between options that require each of the two participants to give up some number of small tokens or large tokens. Figure A.2 shows how this information is explained and the corresponding understanding questions that each subject must answer correctly in order to proceed.

Figure A.2: Instructions and Understanding Questions

A Future Study: In a future study, other Mturk participants will be asked to answer a series of questions. As part of their payment, they will receive a random endowment of small tokens and large tokens. Before the participants complete the study, they will have to give up some of their tokens. At the end of the study, any tokens that a participant gets to keep are turned into cents and paid to that participant as a bonus. Each small token is worth 1 cent. Each large token is worth 2 cents.

Your Decisions: You will be paired with two randomly selected Mturk participants who will complete the future study. We will refer to your two Mturk participants as "your first participant" and "your second participant."

Your two participants will face one randomly selected scenario out of 26 possible scenairos that vary in how many tokens they are endowed with. We will refer to the randomly selected scenario as the "scenario-that-counts." For each of the 26 scenarios, you will be asked to choose between one of three allocations. Each allocation will specify how many small tokens each of your participants must give up out of their endowments of small tokens or how many large tokens each of your participants must give up out of their endowments of large tokens. The allocation you choose in the scenario-that-counts will then be implemented and thus determine how many small tokens and how many large tokens each of your participants gets to keep.

Understanding Question: In the scenario-that-counts, the allocation you choose...

- ○ will not influence how many tokens each of your participants gets to keep.
- ○ will determine how many tokens each of your participants gets to keep.
- ○ may or may not determine how many tokens each of your participants gets to keep.

Understanding Question: As a bonus, the participants will receive...

- ○ 1 cent for each small token and 1 cent for each large token that they get to keep.
- ○ 2 cents for each small token and 1 cent for each large token that they get to keep.
- ○ 1 cent for each small token and 2 cents for each large token that they get to keep.

Understanding Question: Consider a scenario where, relative to your second participant, your first participant will be endowed with a larger number of small tokens and a larger number of large tokens -- in particular:

Your first participant: will be endowed with **120** small tokens and **50** large tokens
Your second participant: will be endowed with **110** small tokens and **40** large tokens

If the allocation that is implemented requires your first participant to give up **40** small tokens and your second participant to give up **20** small tokens, how many tokens would each of your participants get to keep?

- ○ **Your first participant**: will get to keep **80** small tokens and **50** large tokens
  Your second participant: will get to keep **90** small tokens and **40** large tokens
- ○ **Your first participant**: will get to keep **120** small tokens and **10** large tokens
  Your second participant: will get to keep **110** small tokens and **20** large tokens
- ○ **Your first participant**: will get to keep **120** small tokens and **50** large tokens
  Your second participant: will get to keep **110** small tokens and **40** large tokens

The subjects then face 26 decisions, arising from 13 unique endowment sets. These 13 endowment sets only differ in the initial endowment of the second participant, since the first participant always has an initial endowment of 140 small tokens and 70 large tokens. See Table B.2 for details on these endowment sets. While all subjects face the same decisions, the order of these 26 decisions is randomized at the subject level as follows. Each subject is randomized to either make the 13 small-token decisions first or the 13 large-token decisions first. Within each set of 13 decisions, the order of the endowments for the second participants are randomized. Figure A.3 shows an example of a small-token decision where the subject is asked to decide how many small tokens the first and second participant must give up. Figure A.4 shows an example of a large-token decision where the subject is asked to decide how many large tokens the first and second participant must give up.

Figure A.3: Example of a Small-Token Decision

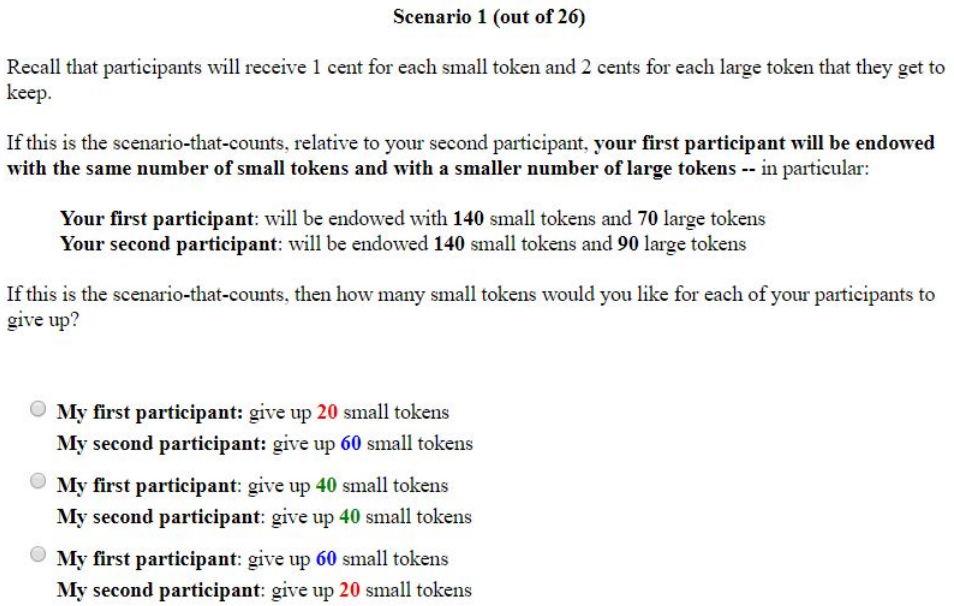
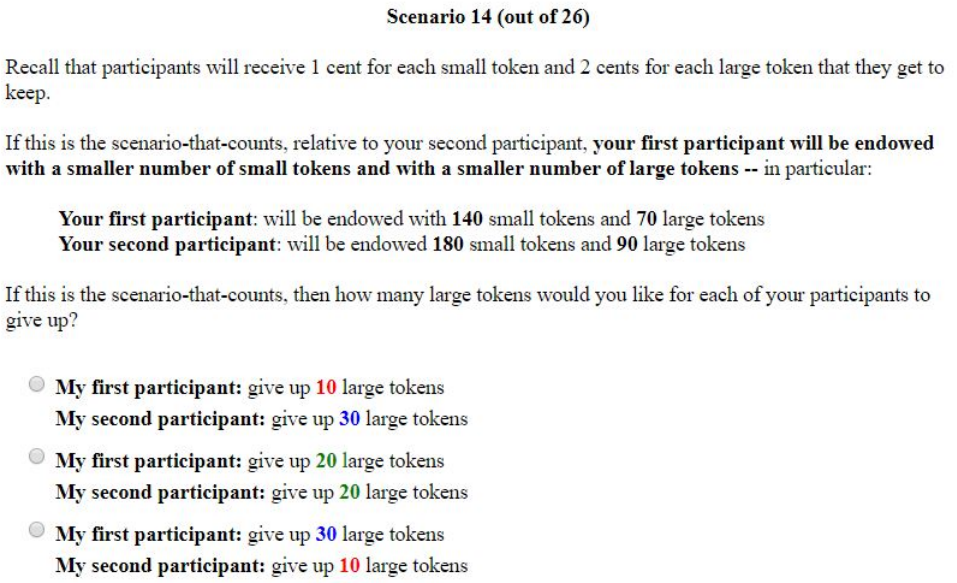


Figure A.4: Example of a Large-Token Decision



To complete the study, each subject must then answer a follow-up survey that collects socio-demographic information.

After the study is completed, each subject receives their $4 completion payment and additional payment is distributed to their two participants (who participate in a future study) according to their choice in the allocation-that-counts.

A.2 Experimental Instructions: The *Tokens, First Person* version

In the *Tokens, First Person* version, the subjects who make decisions are assigned to the role of the first participant, so each decision involves allocating small or large tokens between oneself and another study participant assigned to the role of the second participant. More specifically, for the *Tokens, First Person* version, all that differs from the *Tokens* version (see Appendix A.1) is the perspective subjects must take when they making decisions.

Thus, the corresponding differences are shown in the following figures: Figure A.5 shows how the instructions are explained and the corresponding understanding questions that each subject must answer correctly in order to proceed; Figure A.6 shows an example of a small-token decision; and Figure A.7 shows an example of a large-token decision.

Figure A.5: Instructions and Understanding Questions

A Future Study: In a future study, other Mturk participants will be asked to answer a series of questions. As part of their payment, they will receive a random endowment of small tokens and large tokens. Before the participants complete the study, they will have to give up some of their tokens.

Your Decisions: You will be paired with one randomly selected Mturk participant who will complete the future study. We will refer to this participant as "your partner." Your partner will face one randomly selected scenario out of 26 possible scenarios that vary in how many tokens they are endowed with. We will refer to the randomly selected scenario as the "scenario-that-counts." For each of the 26 scenarios, you will be asked to choose between one of three allocations. Each allocation will specify how many small tokens you and your partner must give up or how many large tokens you and your partner must give up. The allocation you choose in the scenario-that-counts will then be implemented and thus determine how many small tokens and how many large tokens each of you gets to keep.

Bonus Payments: At the end of the study, any tokens you and your partner get to keep are turned into cents and paid to you and your partner, respectively, as a bonus. Each small token will be turned into 1 cent. Each large token will be turned into 2 cents.

Understanding Question: In the scenario-that-counts, the allocation you choose...

- will not influence how many tokens you and your partner get to keep.
- will determine how many tokens you and your partner get to keep.
- may or may not determine how many tokens you and your partner get to keep.

Understanding Question: As a bonus, you and your partner will receive...

- 1 cent for each small token and 1 cent for each large token that you and your partner get to keep, respectively.
- 2 cents for each small token and 1 cent for each large token that you and your partner get to keep, respectively.
- 1 cent for each small token and 2 cents for each large token that you and your partner get to keep, respectively.

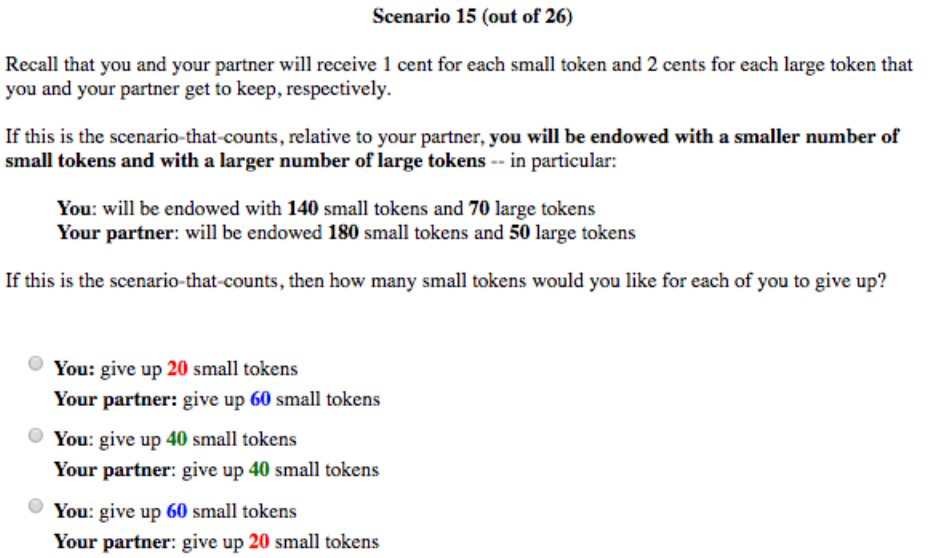
Understanding Question: Consider a scenario where, relative to your partner, you will be endowed with a larger number of small tokens and a larger number of large tokens -- in particular:

You: will be endowed with **120** small tokens and **50** large tokens
Your partner: will be endowed with **110** small tokens and **40** large tokens

If the allocation that is implemented requires you to give up **40** small tokens and your partner to give up **20** small tokens, how many tokens would each of you get to keep?

- **You**: will get to keep **80** small tokens and **50** large tokens
  Your partner: will get to keep **90** small tokens and **40** large tokens
- **You**: will get to keep **120** small tokens and **10** large tokens
  Your partner: will get to keep **110** small tokens and **20** large tokens
- **You**: will get to keep **120** small tokens and **50** large tokens
  Your partner: will get to keep **110** small tokens and **40** large tokens

Figure A.6: Example of a Small-Token Decision



Scenario 15 (out of 26)

Recall that you and your partner will receive 1 cent for each small token and 2 cents for each large token that you and your partner get to keep, respectively.

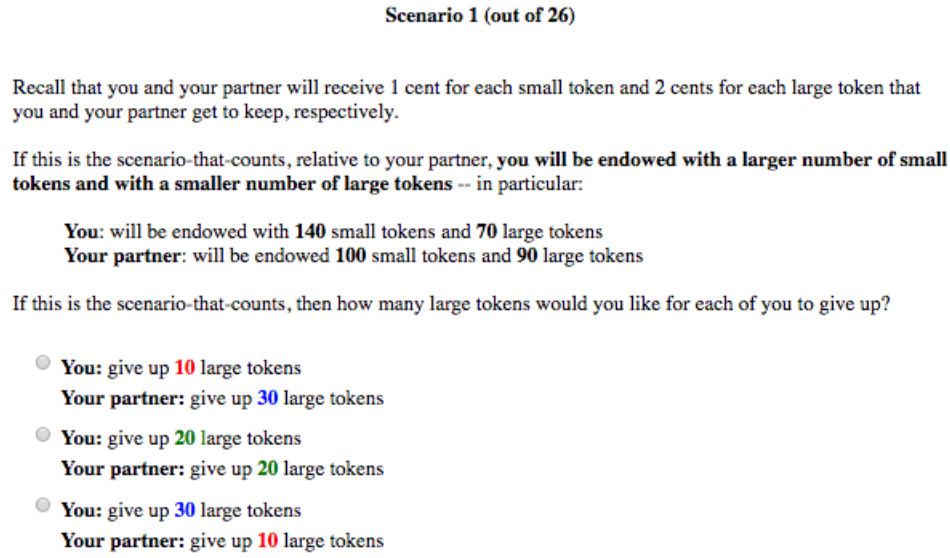
If this is the scenario-that-counts, relative to your partner, **you will be endowed with a smaller number of small tokens and with a larger number of large tokens** -- in particular:

You: will be endowed with **140** small tokens and **70** large tokens
Your partner: will be endowed **180** small tokens and **50** large tokens

If this is the scenario-that-counts, then how many small tokens would you like for each of you to give up?

- **You:** give up 20 small tokens
  Your partner: give up 60 small tokens
- **You**: give up 40 small tokens
  Your partner: give up 40 small tokens
- **You**: give up 60 small tokens
  Your partner: give up 20 small tokens

Figure A.7: Example of a Large-Token Decision



Scenario 1 (out of 26)

Recall that you and your partner will receive 1 cent for each small token and 2 cents for each large token that you and your partner get to keep, respectively.

If this is the scenario-that-counts, relative to your partner, **you will be endowed with a larger number of small tokens and with a smaller number of large tokens** -- in particular:

You: will be endowed with **140** small tokens and **70** large tokens
Your partner: will be endowed **100** small tokens and **90** large tokens

If this is the scenario-that-counts, then how many large tokens would you like for each of you to give up?

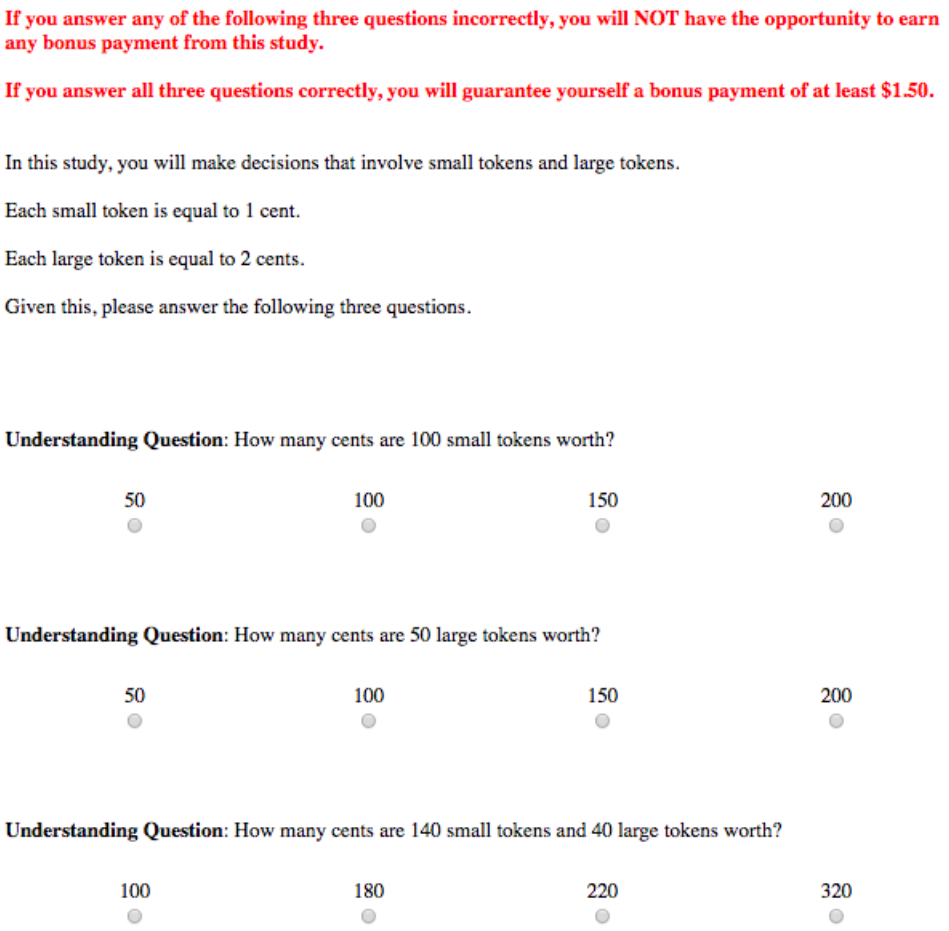
- **You:** give up 10 large tokens
  Your partner: give up 30 large tokens
- **You:** give up 20 large tokens
  Your partner: give up 20 large tokens
- **You:** give up 30 large tokens
  Your partner: give up 10 large tokens

After the study is completed, each subject receives their $4 completion payment and additional payment is distributed to them and the second participant (who participates in a future study) according to their choice in the allocation-that-counts.

A.3 Experimental Instructions: The *Tokens, Final Allocations* version

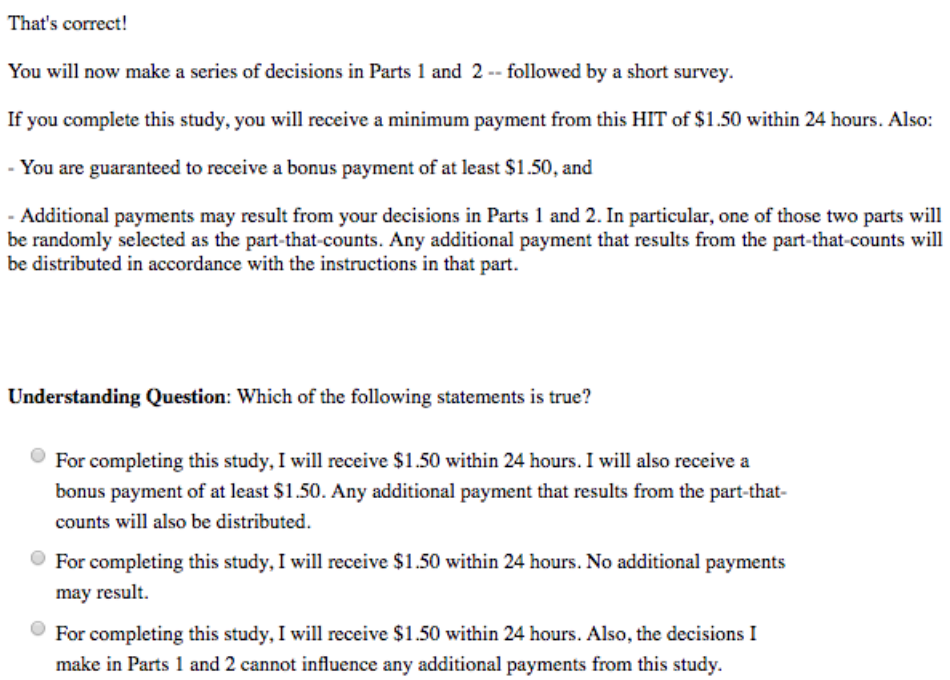
After consenting to participate in the study, subjects are asked three screening questions that require them to correctly report the monetary value of: (i) 50 small tokens, (ii) 100 large tokens, and (iii) the sum of 140 small tokens and 40 large tokens. The 60 subjects who answered one or more of these questions incorrectly were screened out of our study, did not participate further, and only received a $1.50 completion payment. The 340 subjects who answered all of these questions correctly were screened into our study, made 20 choices and received a $3.00 completion payment. Figure A.8 shows how this information is explained and the corresponding screening questions.

Figure A.8: Screening Questions



Among the participants who are screened into our study, Figure A.9 shows additional payment information for this study and the corresponding understanding question that each subject must answer correctly in order to proceed.

Figure A.9: Payment Information


That's correct!

You will now make a series of decisions in Parts 1 and 2 -- followed by a short survey.

If you complete this study, you will receive a minimum payment from this HIT of $1.50 within 24 hours. Also:

- You are guaranteed to receive a bonus payment of at least $1.50, and

- Additional payments may result from your decisions in Parts 1 and 2. In particular, one of those two parts will be randomly selected as the part-that-counts. Any additional payment that results from the part-that-counts will be distributed in accordance with the instructions in that part.

Understanding Question: Which of the following statements is true?

- For completing this study, I will receive $1.50 within 24 hours. I will also receive a bonus payment of at least $1.50. Any additional payment that results from the part-that-counts will also be distributed.
- For completing this study, I will receive $1.50 within 24 hours. No additional payments may result.
- For completing this study, I will receive $1.50 within 24 hours. Also, the decisions I make in Parts 1 and 2 cannot influence any additional payments from this study.

The subjects then proceed to the study instructions about Part 1 (out of the two parts) in the study. Part 1 is randomly determined to either involve 10 "first-person" decisions or 10 "social planner" decisions. Moreover, within each set of these 10 decisions, we randomize, for each subject: whether the subject makes the small-token or large-token decisions first, and the order of decisions within each set of five.

If Part 1 involves the "first-person" decisions, Figure A.10 shows how the instructions are explained and the corresponding understanding questions that each subject must answer correctly in order to proceed. If Part 2 involves "first-person" decisions, all that would differ is the references to Part 1 would be replaced with references to Part 2.

Figure A.10: First-Person Decisions: Instructions and Understanding Questions

Instructions for Part 1 out of 2

At the end of this study, if Part 1 is randomly selected as the part-that-counts, the following will occur:

You will be paired with one randomly selected Mturk participant who will complete a future study. We will refer to this Mturk participant as "your partner."

You and your partner will receive bonus payments that result from one randomly selected scenario out of 10 possible scenarios. We will refer to the randomly selected scenario as the "scenario-that-counts." In particular, at the end of the study, you and your partner will each be given the number of small tokens and large tokens that results from the scenario-that-counts. Any tokens that you and your partner are given will be turned into cents and paid to you and your partner, respectively, as bonus payments. Each small token will be turned into 1 cent. Each large token will be turned into 2 cents.

How many tokens you and you partner are given will, in part, depend on your decisions. In particular, for each of the 10 scenarios, you will be asked to choose between one of three allocations. In some scenarios, it has been randomly determined how many small tokens you and your partner will be given, and which allocation you choose will determine how many large tokens you and your partner will be given. In other scenarios, it has been randomly determined how many large tokens you and your partner will be given, and which allocation you choose will determine how many small tokens you and your partner will be given.

Understanding Question: If Part 1 is randomly selected as the part-that-counts, the allocation you choose in the scenario-that-counts ...

- will not influence how many tokens you and your partner are given.
- will influence how many tokens you and your parnter are given.
- may or may not influence how many tokens you and your partner are given.

Understanding Question: If Part 1 is randomly selected as the part-that-counts, you and your partner will receive...

- 1 cent for each small token and 1 cent for each large token that are given to you and your partner, respectively.
- 2 cents for each small token and 1 cent for each large token that are given to you and your partner, respectively.
- 1 cent for each small token and 2 cents for each large token that are given to you and your partner, respectively.

Understanding Question: Consider a scenario where, relative to your partner, you are given a larger number of large tokens -- in particular:

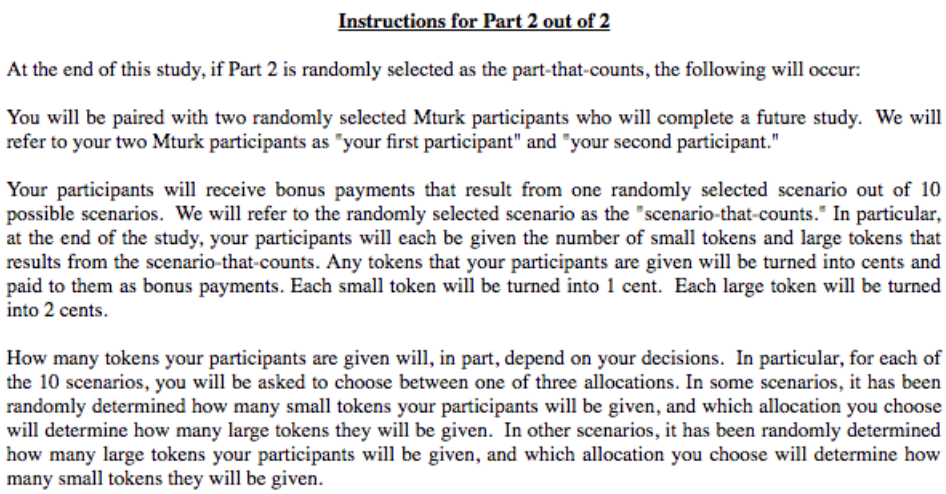
You: will be given **50** large tokens
Your partner: will be given **40** large tokens

If an allocation is implemented that gives you **40** small tokens and your partner **20** small tokens, how many tokens would each of you be given?

- **You**: will be given **40** small tokens only
  Your partner: will be given **20** small tokens only
- **You**: will be given **50** large tokens only
  Your partner: will be given **40** large tokens only
- **You**: will be given **40** small tokens and **50** large tokens
  Your partner: will be given **20** small tokens and **40** large tokens

If Part 2 involves the "social-planner" decisions, Figure A.11 shows how the instructions are explained and the corresponding understanding questions that each subject must answer correctly in order to proceed. If Part 2 involves "first-person" decisions, all that would differ is the references to Part 1 would be replaced with references to Part 2.

Figure A.11: Social-Planner Decisions: Instructions and Understanding Questions



Instructions for Part 2 out of 2

At the end of this study, if Part 2 is randomly selected as the part-that-counts, the following will occur:

You will be paired with two randomly selected Mturk participants who will complete a future study. We will refer to your two Mturk participants as "your first participant" and "your second participant."

Your participants will receive bonus payments that result from one randomly selected scenario out of 10 possible scenarios. We will refer to the randomly selected scenario as the "scenario-that-counts." In particular, at the end of the study, your participants will each be given the number of small tokens and large tokens that results from the scenario-that-counts. Any tokens that your participants are given will be turned into cents and paid to them as bonus payments. Each small token will be turned into 1 cent. Each large token will be turned into 2 cents.

How many tokens your participants are given will, in part, depend on your decisions. In particular, for each of the 10 scenarios, you will be asked to choose between one of three allocations. In some scenarios, it has been randomly determined how many small tokens your participants will be given, and which allocation you choose will determine how many large tokens they will be given. In other scenarios, it has been randomly determined how many large tokens your participants will be given, and which allocation you choose will determine how many small tokens they will be given.

Understanding Question: If Part 2 is randomly selected as the part-that-counts, the allocation you choose in the scenario-that-counts ...

- will not influence how many tokens are given to each of your participants.
- will influence how many tokens are given to each of your participants.
- may or may not influence how many tokens are given to each of your participants.

Understanding Question: If Part 2 is randomly selected as the part-that-counts, your participants will receive...

- 1 cent for each small token and 1 cent for each large token that they are given.
- 2 cents for each small token and 1 cent for each large token that they are given.
- 1 cent for each small token and 2 cents for each large token that they are given.

Understanding Question: Consider a scenario where, relative to your second participant, your first participant is given a larger number of large tokens -- in particular:

Your first participant: will be given **50** large tokens
Your second participant: will be given **40** large tokens

If an allocation is implemented that gives your first participant **40** small tokens and your second participant **20** small tokens, how many tokens would each of your participants be given?

- **Your first participant**: will be given **40** small tokens only
  Your second participant: will be given **20** small tokens only
- **Your first participant**: will be given **50** large tokens only
  Your second participant: will be given **40** large tokens only
- **Your first participant**: will be given **40** small tokens and **50** large tokens
  Your second participant: will be given **20** small tokens and **40** large tokens

For details on each of the 10 decisions participants make in each part, see Appendix Table B.6. Also, Figure A.12 shows an example of a first-person small-token decision; Figure A.13 shows an example of a first-person large-token decision; Figure A.14 shows an example of a social-planner small-token decision; and Figure A.15 shows an example of a social planner large-token decision.

Figure A.12: Example of a First-Person Small-Token Decision

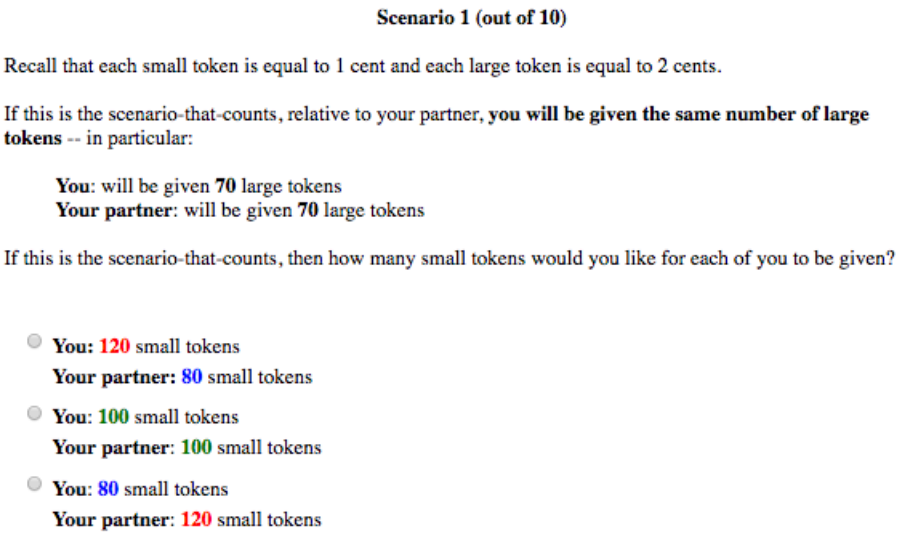


Figure A.13: Example of a First-Person Large-Token Decision

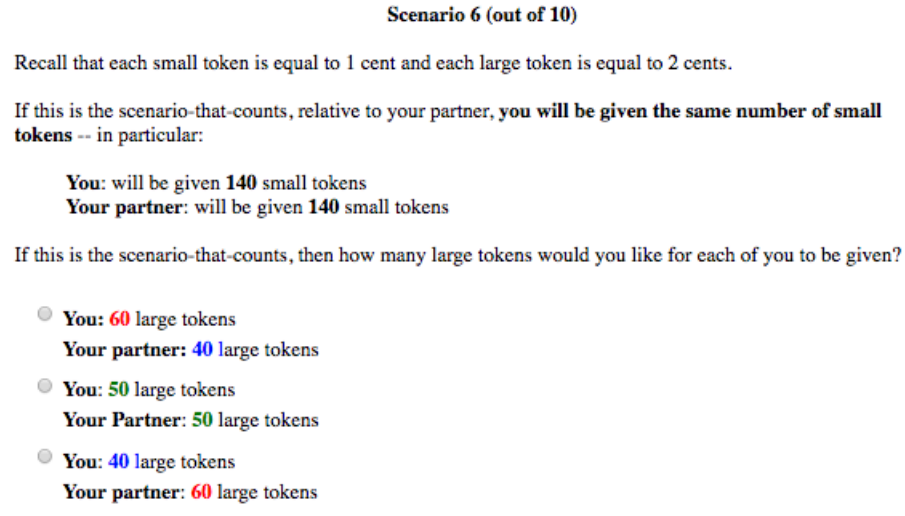


Figure A.14: Example of a Social-Planner Small-Token Decision

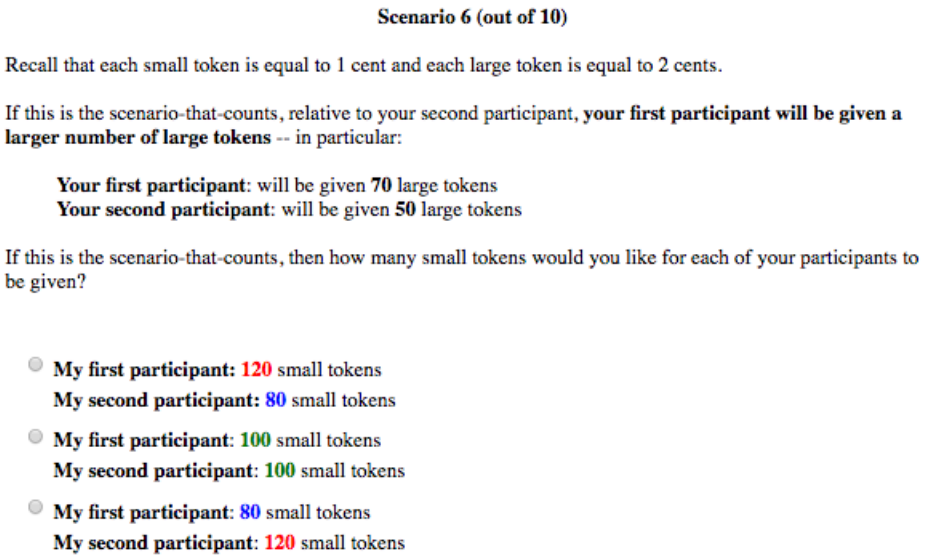
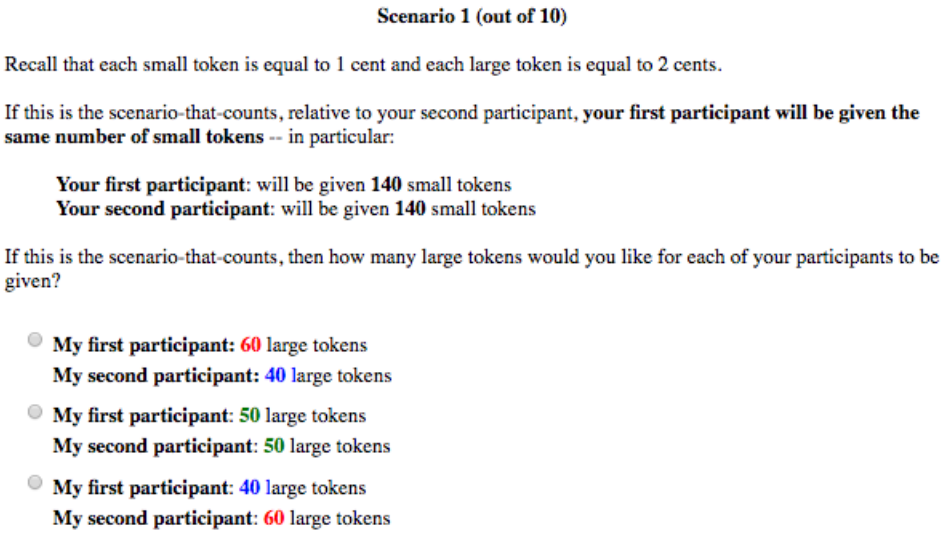


Figure A.15: Example of a Social-Planner Large-Token Decision



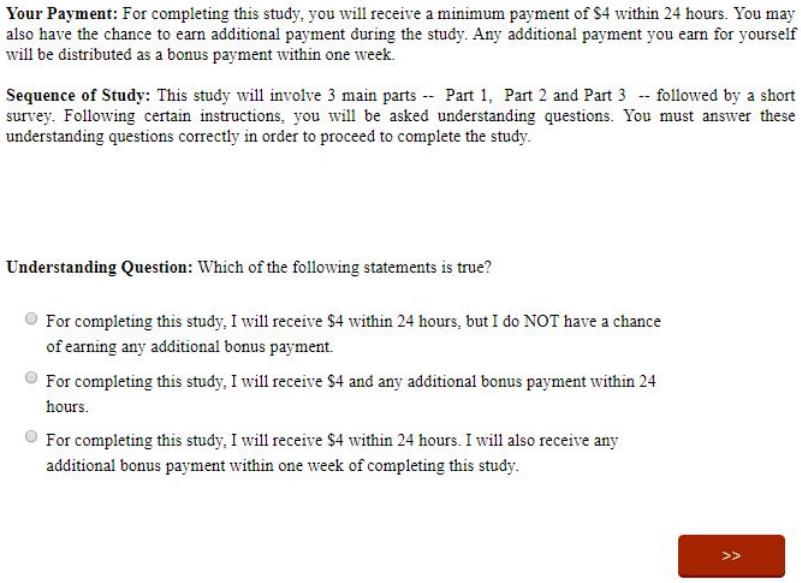
To complete the study, each subject must then answer a follow-up survey that collects socio-demographic information.

After the study is completed, each subject receives their \$1.50 completion payment, their guaranteed additional payment of \$1.50, and additional payment is distributed to either them and their second participant (who participants in a future study) or to their two participants (who participate in a future study) according to their choice in the allocation-that-counts.

A.4 Experimental Instructions:The *Money & Time* version

After consenting to participate in the study, these subjects are informed of the $4 study completion fee and of the opportunity to earn additional payment. Figure A.16 shows how this payment information is explained and the corresponding understanding question that each subject must answer correctly in order to proceed.

Figure A.16: Payment Information



In Part 1, subjects complete 10 time-burning tasks. Figure A.17 shows how time-burning tasks are explained and Figure A.18 shows an example of a time-burning task.

Figure A.17: Part 1 Instructions

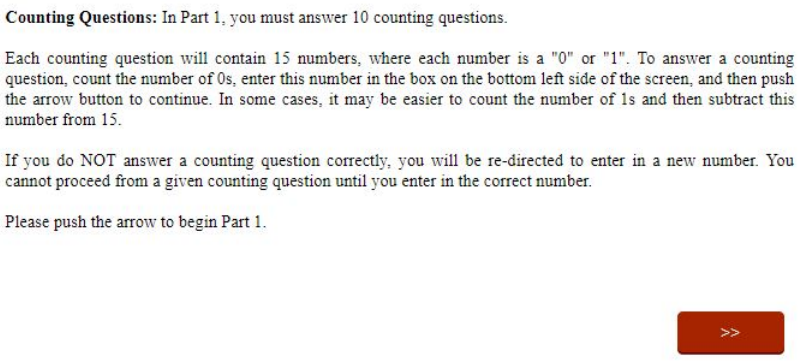
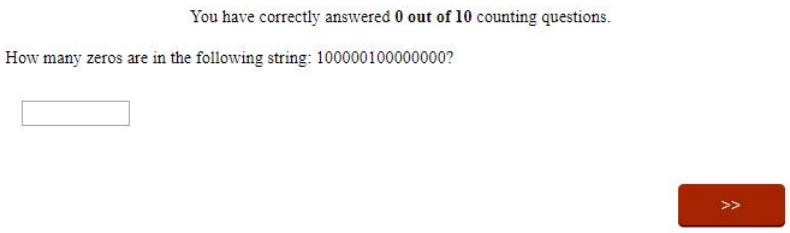


Figure A.18: Part 1 Example of Time-Burning Task



In Part 2, subjects learn that they will make decisions involving participants from a different version of this study who are called "allocators" (who we refer to in our main text and what follows as ''first participants"). Subjects learn that they will make these decisions since they may be these allocators' "judge." In particular, the subjects learn that they must complete three multiple price lists, on behalf of the first participants, which trade off sacrificing money and doing more tasks. These price lists allows us to establish how much money each subject thinks the first participant should be willing to sacrifice to avoid completing an additional 10, 30, and 50 tasks. As explained in Appendix C, the decisions on these multiple price lists allow us to determine the values of M_{10} and M_{50} for each subject. Figure A.19 shows how these multiple price lists are explained and the corresponding understanding questions each subject must answer correctly to proceed to the first multiple price list. Figure A.20 shows the transition to the first multiple price list, and Figure A.21 shows the first multiple price list. The subsequent two price lists appear the same as the first, except that "10 tasks" is replaced with "30 tasks" in the second multiple price list and with "50 tasks" in the third multiple price list.

Figure A.19: Part 2 Instructions

Allocators: Allocators will be Mturk workers who will complete a different version of this study. Like you, Allocators will complete a Part 1 that involves answering counting questions. Unlike you, they will have to answer 60 (instead of 10) counting questions in Part 1 and will earn a "credited amount" of 200 cents from doing so. Any credited amount remaining at the end of the study will be given to Allocators as bonus payments.

Some of the Allocators' decisions will involve three lists. Each row on these lists represents one decision between solving more counting questions (the option on the LEFT) or giving up some of their credited amount of 200 cents (the option on the RIGHT).

Decision-that-Counts for Allocators: One decision that the Allocators make will be randomly selected and called the decision-that-counts. If the decision-that-counts comes from a row on one of these lists, the Allocators' decision on that row will be implemented with a 90% chance and will not be implemented with a 10% chance. If the Allocators' decision is not implemented, someone who completes this version of the study (which includes you) will be randomly selected to be the "Judge." The Judge's decision on that row would then be implemented.

Your Decisions: In Part 2 of the study, please indicate your preferred decision on each row of the lists in case you are randomly selected to be the Judge.

Below is an example of a list. Note that the option on the LEFT always involves Allocators answering 1 more counting question. The option on the RIGHT involves the Allocators instead giving up some amount of money from their credited amount of 200 cents. This amount of money decreases from 5 to 0 cents as you proceed down the list.

ALLOCATORS MUST ANSWER		ALLOCATORS MUST GIVE UP
1 COUNTING QUESTION	OR	5 CENTS
1 COUNTING QUESTION	OR	4 CENTS
1 COUNTING QUESTION	OR	3 CENTS
1 COUNTING QUESTION	OR	2 CENTS
1 COUNTING QUESTION	OR	1 CENTS
1 COUNTING QUESTION	OR	0 CENTS

To complete a list like the one above, you need to click on the row at which you would prefer to switch from choosing the option on the left to choosing the option on the right. For example, imagine you chose the option on the left for the first 4 rows and then chose to switch to the option on the right for the last 2 rows. Then, your completed list would look like the one shown below.

ALLOCATORS MUST ANSWER		ALLOCATORS MUST GIVE UP
1 COUNTING QUESTION	OR	5 CENTS
1 COUNTING QUESTION	OR	4 CENTS
1 COUNTING QUESTION	OR	3 CENTS
1 COUNTING QUESTION	OR	2 CENTS
1 COUNTING QUESTION	OR	1 CENTS
1 COUNTING QUESTION	OR	0 CENTS

Understanding Question: In Part 1, how many counting questions will the Allocators answer and how much will they be credited for doing so?

- The Allocators will answer 10 counting questions in Part 1 and be credited 10 cents from doing so.
- The Allocators will answer 60 counting questions in Part 1 and be credited 60 cents from doing so.
- The Allocators will answer 60 counting questions in Part 1 and be credited 200 cents from doing so.

Understanding Question: Imagine that you completed a list in the manner shown above and the second row was randomly selected as the decision-that-counts. If the Allocators' decisions are not implemented and you are the randomly selected Judge ...

- The Allocators would have to answer 1 more counting question and thus answer a total of 61 counting questions.
- The Allocators would have to give up 1 cent from their credited amount and thus receive 199 cents as bonus payment.
- The Allocators would have to give up 4 cents from their credited amount and thus receive 196 cents as bonus payment.

Understanding Question: Imagine that you completed a list in the manner shown above and the fifth row was randomly selected as the decision-that-counts. If the Allocators' decisions are not implemented and you are the randomly selected Judge ...

- The Allocators would have to answer 1 more counting question and thus answer a total of 61 counting questions.
- The Allocators would have to give up 1 cent from their credited amount and thus receive 199 cents as bonus payment.
- The Allocators would have to give up 4 cents from their credited amount and thus receive 196 cents as bonus payment.

>>

Figure A.20: Part 2 Transition to First Multiple Price List

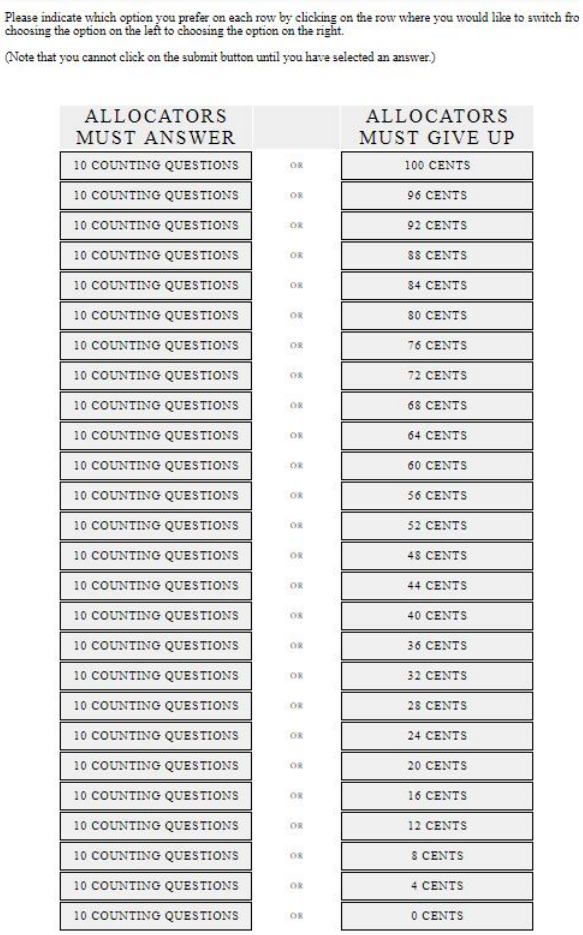
For List 1 (out of 3):

- The option on the LEFT will always involve the Allocators answering 10 more counting questions to avoid giving up any money from their credited amount of 200 cents.

- The option on the RIGHT will involve the Allocators giving up some amount of money from their credited amount of 200 cents to avoid answering 10 more counting questions. This amount of money will decrease from 100 to 0 cents as you proceed down the rows of the list.

>>

Figure A.21: Part 2 First Multiple Price List



Please indicate which option you prefer on each row by clicking on the row where you would like to switch fro choosing the option on the left to choosing the option on the right.

(Note that you cannot click on the submit button until you have selected an answer.)

ALLOCATORS MUST ANSWER		ALLOCATORS MUST GIVE UP
10 COUNTING QUESTIONS	OR	100 CENTS
10 COUNTING QUESTIONS	OR	96 CENTS
10 COUNTING QUESTIONS	OR	92 CENTS
10 COUNTING QUESTIONS	OR	88 CENTS
10 COUNTING QUESTIONS	OR	84 CENTS
10 COUNTING QUESTIONS	OR	80 CENTS
10 COUNTING QUESTIONS	OR	76 CENTS
10 COUNTING QUESTIONS	OR	72 CENTS
10 COUNTING QUESTIONS	OR	68 CENTS
10 COUNTING QUESTIONS	OR	64 CENTS
10 COUNTING QUESTIONS	OR	60 CENTS
10 COUNTING QUESTIONS	OR	56 CENTS
10 COUNTING QUESTIONS	OR	52 CENTS
10 COUNTING QUESTIONS	OR	48 CENTS
10 COUNTING QUESTIONS	OR	44 CENTS
10 COUNTING QUESTIONS	OR	40 CENTS
10 COUNTING QUESTIONS	OR	36 CENTS
10 COUNTING QUESTIONS	OR	32 CENTS
10 COUNTING QUESTIONS	OR	28 CENTS
10 COUNTING QUESTIONS	OR	24 CENTS
10 COUNTING QUESTIONS	OR	20 CENTS
10 COUNTING QUESTIONS	OR	16 CENTS
10 COUNTING QUESTIONS	OR	12 CENTS
10 COUNTING QUESTIONS	OR	8 CENTS
10 COUNTING QUESTIONS	OR	4 CENTS
10 COUNTING QUESTIONS	OR	0 CENTS

In Part 3, subjects learn that they will again make decisions involving other participants. They also learn that these decisions will influence other participants who are called "recipients" (who we refer to in our main text and what follows as "second participants"). Figure A.22 shows how the instructions for Part 3 are explained and the corresponding understanding questions each subject must answer correctly to proceed to making their decisions in Part 3.

Figure A.22: Part 3 Instructions

Allocators and Recipients: Allocators and Recipients will be Mturk workers who will complete a different version of this study. As described earlier, the Allocators will be Mturk workers will have to answer 60 (instead of 10) counting questions in Part 1 and will earn a credited amount of 200 cents from doing so. Recipients, however, may have to answer a different number of counting questions in Part 1 and may earn a different credited amount from doing so.

In "money" scenarios, Allocators will be randomly matched with Recipients and told to indicate their preferred "money allocations." Money allocations indicate how much money the Allocators must give up from their credited amounts and how much money the Recipients must give up from their credited amounts to complete this study.

In "time" scenarios, Allocators will be randomly matched with Recipients and told to indicate their preferred "time allocations." Time allocations indicate how many additional counting questions the Allocators must answer and how many additional counting questions the Recipients must answer to complete this study.

Decision-that-Counts for Allocators and Recipients: One decision that the Allocators make will be randomly selected and called the decision-that-counts. If the decision-that-counts comes from one of the time or money scenarios, the Allocators' preferred allocation will be implemented with a 90% chance and not implemented with a 10% chance. If the Allocators' preferred allocation is not implemented, someone who completes this version of the study (which includes you) will be randomly selected to be the "Judge." The Judge's preferred allocation for the relevant scenario would then be implemented.

Your Decisions: In Part 3 of the study, please indicate your preferred allocation for each scenario in case you are randomly selected to be the Judge. Also, please evaluate whether each potential allocation that an Allocator could make is "very socially inappropriate," "somewhat socially inappropriate," "somewhat socially appropriate," or "very socially appropriate."

Evaluation-that-Counts for Your Bonus Payment: We will randomly select one potential allocation that an Allocator could make from one of the scenarios. Your evaluation of that potential allocation will be called your evaluation-that-counts. If your evaluation-that-counts was the same as the evaluation made by most Mturk workers who complete this study, you will receive $1 in bonus payment. Otherwise, you will receive no additional bonus payment.

Understanding Question: If you are the randomly selected Judge, in the scenario-that-counts ...

- the Allocator's preferred allocation will be implemented.
- your preferred allocation will be implemented.
- your preferred allocation will be implemented with a 10% chance and the Allocator's preferred allocation will be implemented otherwise.

Understanding Question: Consider a scenario where, relative to their Recipients in that scenario, Allocators will earn a larger credited amount from answering a larger number of questions in Part 1 -- in particular:

Allocators: earn 200 cents from answering 60 counting questions
Recipients: earn 100 cents from answering 30 counting questions

If the money allocation that is implemented requires Allocators to give up 50 cents and Recipients to give up 20 cents, how much bonus payment will the Allocators and Recipients receive?

- **Allocators**: 250 cents in bonus payment
  Recipients: 120 cents in bonus payment
- **Allocators**: 200 cents in bonus payment
  Recipients: 100 cents in bonus payment
- **Allocators**: 150 cents in bonus payment
  Recipients: 80 cents in bonus payment

Understanding Question: Consider a scenario where, relative to their Recipients in that scenario, Allocators will earn a larger credited amount from answering a larger number of questions in Part 1 -- in particular:

Allocators: earn 200 cents from answering 60 counting questions
Recipients: earn 100 cents from answering 30 counting questions

If the time allocation that is implemented requires Allocators to answer an additional 10 questions and Recipients to answer an additional 20 questions, how many total questions will be answered by Allocators and Recipients?

- **Allocators**: 70 questions in total
  Recipients: 50 questions in total
- **Allocators**: 60 questions in total
  Recipients: 30 questions in total
- **Allocators**: 50 questions in total
  Recipients: 10 questions in total

Understanding Question: You will receive a bonus payment of $1 within one week...

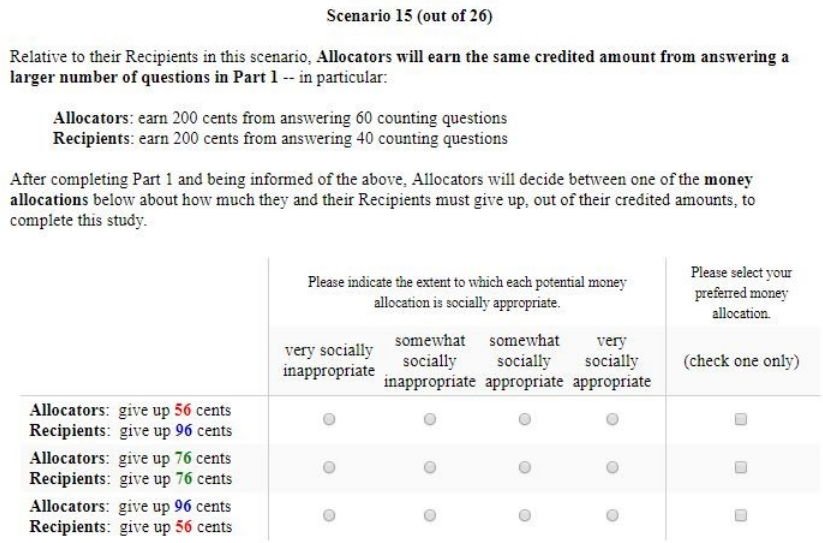
- only if your evaluation-that-counts is different than the most frequently given evaluation by other Mturk workers in this study.
- only if your evaluation-that-counts is the same as the most frequently given evaluation by other Mturk workers in this study.

>>

Subjects then complete Part 3 by making 26 decisions, arising from 13 unique endowment sets. These 13 endowment sets only differ in the endowments of the second participants, since the first participants are always endowed with 200 cents from answering 60 counting questions. See Table B.9 for details on the these endowment sets.

While all subjects face the same decisions, the order of these 26 decisions is randomized at the subject level as follows. Each subject is randomized to either make the 13 money decisions first or the 13 time decisions first. Within each set of 13 decisions, the order of the endowments for the second participants are also randomized. Figure A.23 shows an example of a money decision. Figure A.24 shows an example of a time decision. Note that each decision involves a money or time decision (i.e., subjects must select their preferred choice in the far right hand column of the decision screen) and a social appropriateness evaluation for all possible money or time choices (i.e., subjects must indicate their social appropriateness evaluations in the middle column of the decision screen).

Figure A.23: Example of a Money Decision



Scenario 15 (out of 26)

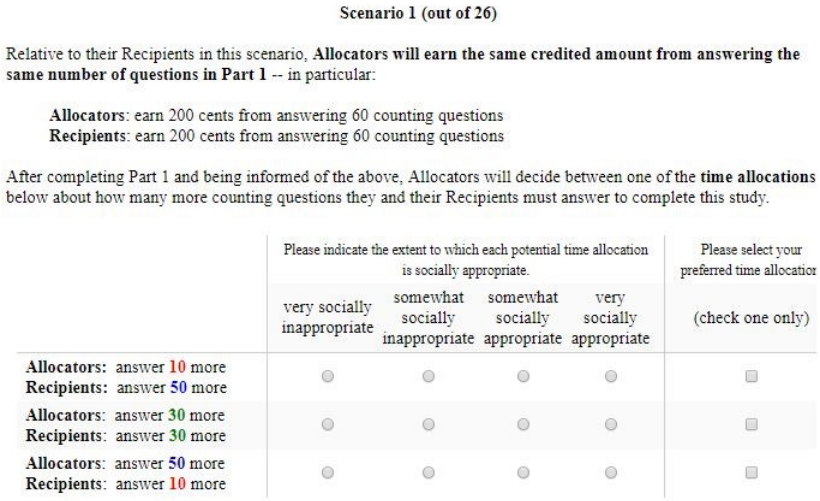
Relative to their Recipients in this scenario, **Allocators will earn the same credited amount from answering a larger number of questions in Part 1** -- in particular:

Allocators: earn 200 cents from answering 60 counting questions
Recipients: earn 200 cents from answering 40 counting questions

After completing Part 1 and being informed of the above, Allocators will decide between one of the **money allocations** below about how much they and their Recipients must give up, out of their credited amounts, to complete this study.

	Please indicate the extent to which each potential money allocation is socially appropriate.				Please select your preferred money allocation.
	very socially inappropriate	somewhat socially inappropriate	somewhat socially appropriate	very socially appropriate	(check one only)
Allocators: give up 56 cents **Recipients**: give up 96 cents	○	○	○	○	☐
Allocators: give up 76 cents **Recipients**: give up 76 cents	○	○	○	○	☐
Allocators: give up 96 cents **Recipients**: give up 56 cents	○	○	○	○	☐

Figure A.24: Example of a Time Decision



Scenario 1 (out of 26)

Relative to their Recipients in this scenario, **Allocators will earn the same credited amount from answering the same number of questions in Part 1** -- in particular:

Allocators: earn 200 cents from answering 60 counting questions
Recipients: earn 200 cents from answering 60 counting questions

After completing Part 1 and being informed of the above, Allocators will decide between one of the **time allocations** below about how many more counting questions they and their Recipients must answer to complete this study.

	Please indicate the extent to which each potential time allocation is socially appropriate.				Please select your preferred time allocation
	very socially inappropriate	somewhat socially inappropriate	somewhat socially appropriate	very socially appropriate	(check one only)
Allocators: answer 10 more **Recipients:** answer 50 more	○	○	○	○	☐
Allocators: answer 30 more **Recipients**: answer 30 more	○	○	○	○	☐
Allocators: answer 50 more **Recipients**: answer 10 more	○	○	○	○	☐

Finally, to complete the study, each subject must then answer a follow-up survey that collects socio-demographic information.

After the study is completed, each subject receives their $4 completion payment and the following also occurs. First, subjects have a chance of being matched with participants from the *Money & Time, First Person* version of our study, and, if matched, there is a 10% chance that their choice will "overrule" a participant's choice from that study to determine the payoffs of the participants.[39] Second, one social appropriateness evaluation is randomly selected as the "evaluation-that-counts." If the subject's social appropriateness evaluation is the same as the modal social appropriateness evaluation of others in the evaluation-that-counts, the subject receives a $1 bonus payment. Making the incentives for the social appropriateness evaluation a coordination game among subjects allows us to identify social norms of appropriateness in the manner of Krupka and Weber (2013).

[39]In practice, the randomly selected question from the *Money & Time, First Person* version was a row on one of the multiple price lists. The process by which subjects were selected for their decision to overrule what the participant chose in the *Money & Time, First Person* version is detailed in footnote 42.

A.5 Experimental Instructions: The *Money & Time, First Person* version

In the *Money & Time, First Person* version, the subjects who make decisions are assigned to the role of the first participant, so each decision involves allocating money or time between oneself and another study participant assigned to the role of the second participant. More specifically, for the *Money & Time, First Person* version, all that differs from the *Money & Time* version (see Appendix A.4) is the number of counting questions subjects must complete in Part 1 and the perspective subjects must take when they make decisions in Part 2 and 3.

In Part 1, rather than being asked to answer 10 counting questions, subjects are asked to answer 60 counting questions.

In Parts 2 and 3, rather than being asked to make decisions on behalf of participants from a different version of this study, subjects make decisions as the first participants.

Figure A.25 shows how the instructions for Part 2 are explained and the corresponding understanding questions that each subject must answer correctly to proceed to the multiple price lists. Figure A.26 shows the transition to the first multiple price list, and Figure A.27 shows the first multiple price list. The subsequent two price lists appear the same as the first, except that "10 tasks" is replaced with "30 tasks" in the second multiple price list and with "50 tasks" in the third multiple price list.

Figure A.25: Part 2 Instructions

In Part 2, you will now make decisions involving three lists. Each row on a list represents one decision between solving more counting questions (the option on the LEFT) or giving up some of your credited amount of 200 cents (the option on the RIGHT).

Decision-that-Counts: One decision that you will make will be randomly selected and called the decision-that-counts. If the decision-that-counts comes from a row on one of these lists, your decision on that row will be implemented with a 90% chance and will not be implemented with a 10% chance. If your decision is not implemented, someone who completes another version of this study will be randomly selected to be the "Judge." The Judge's decision on that row would then be implemented.

Your Decisions: In Part 2 of the study, please indicate your preferred decision on each row of the lists.

Below is an example of a list. Note that the option on the LEFT always involves you answering 1 more counting question. The option on the RIGHT involves you instead giving up some amount of money from your credited amount of 200 cents. This amount of money decreases from 5 to 0 cents as you proceed down the list.

I MUST ANSWER		I MUST GIVE UP
1 COUNTING QUESTION	OR	5 CENTS
1 COUNTING QUESTION	OR	4 CENTS
1 COUNTING QUESTION	OR	3 CENTS
1 COUNTING QUESTION	OR	2 CENTS
1 COUNTING QUESTION	OR	1 CENTS
1 COUNTING QUESTION	OR	0 CENTS

To complete a list like the one above, you need to click on the row at which you would prefer to switch from choosing the option on the left to choosing the option on the right. For example, imagine you chose the option on the left for the first 4 rows and then chose to switch to the option on the right for the last 2 rows. Then, your completed list would look like the one shown below.

I MUST ANSWER		I MUST GIVE UP
1 COUNTING QUESTION	OR	5 CENTS
1 COUNTING QUESTION	OR	4 CENTS
1 COUNTING QUESTION	OR	3 CENTS
1 COUNTING QUESTION	OR	2 CENTS
1 COUNTING QUESTION	OR	1 CENTS
1 COUNTING QUESTION	OR	0 CENTS

Understanding Question: Imagine that you completed a list in the manner shown above, and the second row was randomly selected as the decision-that-counts. If your decision was implemented, what would happen?

I would have to answer 1 more counting question, and I would have to give up 4 cents from my credited amount of 200 cents (i.e., I would only receive 196 cents as a bonus payment).

I would not have to answer any more counting questions, and I would not have to give up any of my credited amount of 200 cents (i.e., I would receive 200 cents as a bonus payment).

I would not have to answer any more counting questions, but I would have to give up 4 cents from my credited amount of 200 cents (i.e., I would only receive 196 cents as a bonus payment).

I would have to answer 1 more counting question, but I would not have to give up any of my credited amount of 200 cents (i.e., I would receive 200 cents as a bonus payment).

Understanding Question: Imagine that you completed a list in the manner shown above, and the fifth row was randomly selected as the decision-that-counts. If your decision was implemented, what would happen?

I would have to answer 1 more counting question, and I would have to give up 1 cent from my credited amount of 200 cents (i.e., I would only receive 199 cents as a bonus payment).

I would not have answer to any more counting questions, and I would not have to give up any of my credited amount of 200 cents (i.e., I would receive 200 cents as a bonus payment).

I would not have to answer any more counting questions, but I would have to give up 1 cents from my credited amount of 200 cents (i.e., I would only receive 199 cents as a bonus payment).

I would have to answer 1 more counting question, but I would not have to give up any of my credited amount of 200 cents (i.e., I would receive 200 cents as a bonus payment).

Figure A.26: Transition to First Multiple Price List

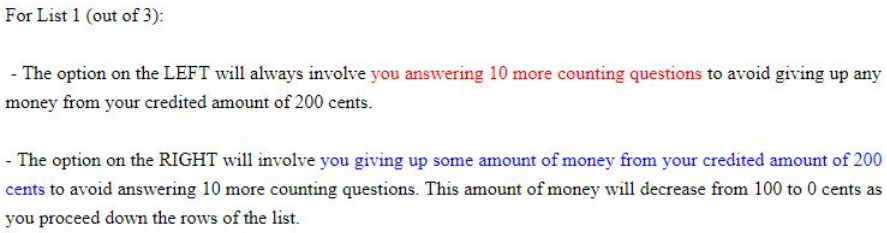
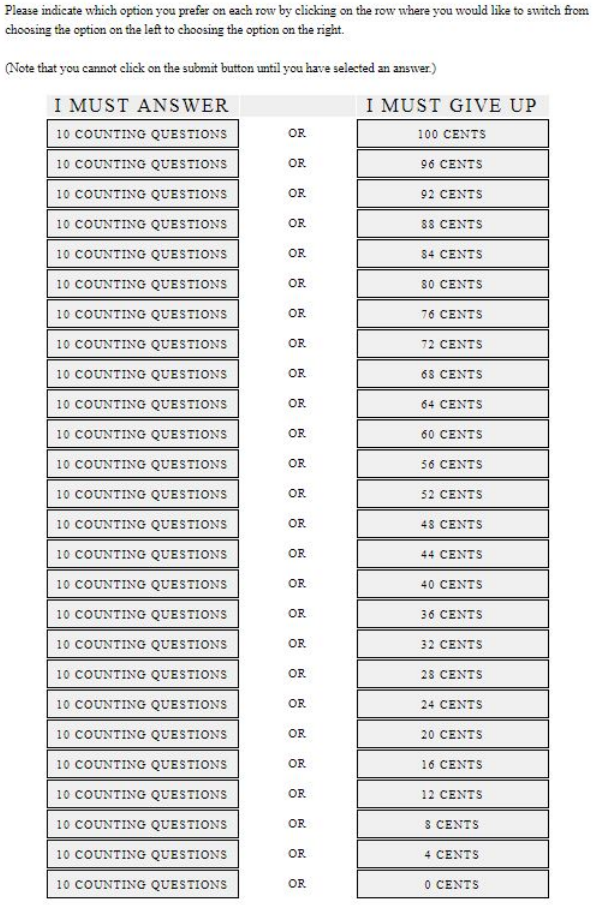


Figure A.27: First Multiple Price List



Please indicate which option you prefer on each row by clicking on the row where you would like to switch from choosing the option on the left to choosing the option on the right.

(Note that you cannot click on the submit button until you have selected an answer.)

I MUST ANSWER		I MUST GIVE UP
10 COUNTING QUESTIONS	OR	100 CENTS
10 COUNTING QUESTIONS	OR	96 CENTS
10 COUNTING QUESTIONS	OR	92 CENTS
10 COUNTING QUESTIONS	OR	88 CENTS
10 COUNTING QUESTIONS	OR	84 CENTS
10 COUNTING QUESTIONS	OR	80 CENTS
10 COUNTING QUESTIONS	OR	76 CENTS
10 COUNTING QUESTIONS	OR	72 CENTS
10 COUNTING QUESTIONS	OR	68 CENTS
10 COUNTING QUESTIONS	OR	64 CENTS
10 COUNTING QUESTIONS	OR	60 CENTS
10 COUNTING QUESTIONS	OR	56 CENTS
10 COUNTING QUESTIONS	OR	52 CENTS
10 COUNTING QUESTIONS	OR	48 CENTS
10 COUNTING QUESTIONS	OR	44 CENTS
10 COUNTING QUESTIONS	OR	40 CENTS
10 COUNTING QUESTIONS	OR	36 CENTS
10 COUNTING QUESTIONS	OR	32 CENTS
10 COUNTING QUESTIONS	OR	28 CENTS
10 COUNTING QUESTIONS	OR	24 CENTS
10 COUNTING QUESTIONS	OR	20 CENTS
10 COUNTING QUESTIONS	OR	16 CENTS
10 COUNTING QUESTIONS	OR	12 CENTS
10 COUNTING QUESTIONS	OR	8 CENTS
10 COUNTING QUESTIONS	OR	4 CENTS
10 COUNTING QUESTIONS	OR	0 CENTS

Figure A.28 shows how the instructions for Part 3 are explained and the corresponding understanding questions that each subject must answer correctly to proceed to make their 26 decisions. Figure A.29 shows an example of a money decision. Figure A.30 shows an example of a time decision.

Figure A.28: Part 3 Instructions

Recipients: Recipients will be Mturk workers who will complete a different version of this study. While you had to solve 60 counting questions in Part 1 to earn a credited amount of 200 cents, Recipients may have to solve a different number of questions in Part 1 and may earn a different credited amount from doing so.

In "money" scenarios, you will be randomly matched with a Recipient and told to indicate your preferred "money allocation". Money allocations indicate how much money you must give up from your credited amount and how much money the Recipient must give up from their credited amount to complete this study.

In "time" scenarios, you will be randomly matched with a Recipient and told to indicate your preferred "time allocation". Time allocations indicate how many additional counting questions you must answer and how many additional counting questions the Receipient must answer to complete this study.

Decision-that-Counts: One decision that you make will be randomly selected and called the decision-that-counts. If the decision-that-counts comes from one of the time or money scenarios, your preferred allocation will be implemented with a 90% chance and will not be implemented with a 10% chance. If your preferred allocation is not implemented, someone who completes this version of the study will be randomly selected to be the "Judge." The Judge's preferred allocation for the relevant scenario would then be implemented.

Your Decisions: In Part 3 of the study, as an Allocator, please indicate your preferred allocation for each scenario.

Understanding Question: Consider a scenario where, relative to the Recipient in that scenario, you earned a larger credited amount from answering a larger number of questions in Part 1 -- in particular:

> **You**: earned 200 cents from answering 60 counting questions
> **Recipient**: earned 100 cents from answering 30 counting questions

If the money allocation that is implemented requires you to give up 50 cents and the Recipient to give up 20 cents, how much bonus payment will you and the Recipient receive?

You: 250 cents in bonus payment
Recipient: 120 cents in bonus payment

You: 200 cents in bonus payment
Recipient: 100 cents in bonus payment

You: 150 cents in bonus payment
Recipient: 80 cents in bonus payment

Understanding Question: Consider a scenario where, relative to the Recipient in that scenario, you earned a larger credited amount from answering a larger number of questions in Part 1 -- in particular:

> **You**: earned 200 cents from answering 60 counting questions
> **Recipient:** earned 100 cents from answering 30 counting questions

If the time allocation that is implemented requires you to answer an additional 10 questions and the Recipient to answer an additional 20 questions, how many total questions will be answered by you and the Recipient (including the questions you and the Recipient have already answered)?

You: 70 questions
Recipient: 50 questions

You: 60 questions
Recipient: 30 questions

You: 50 questions
Recipient: 10 questions

Figure A.29: Example of a Money Decision

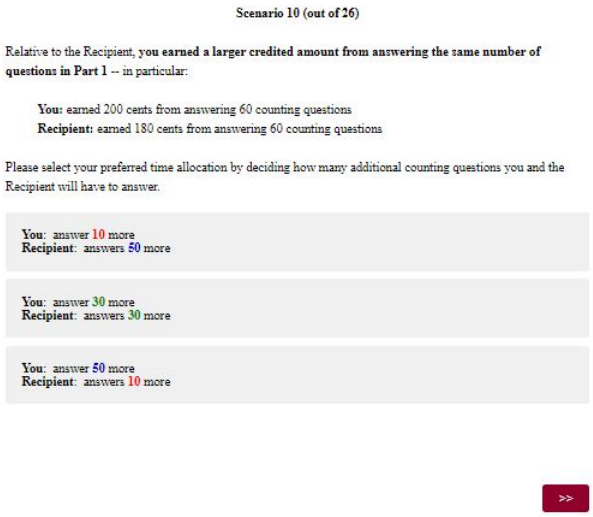
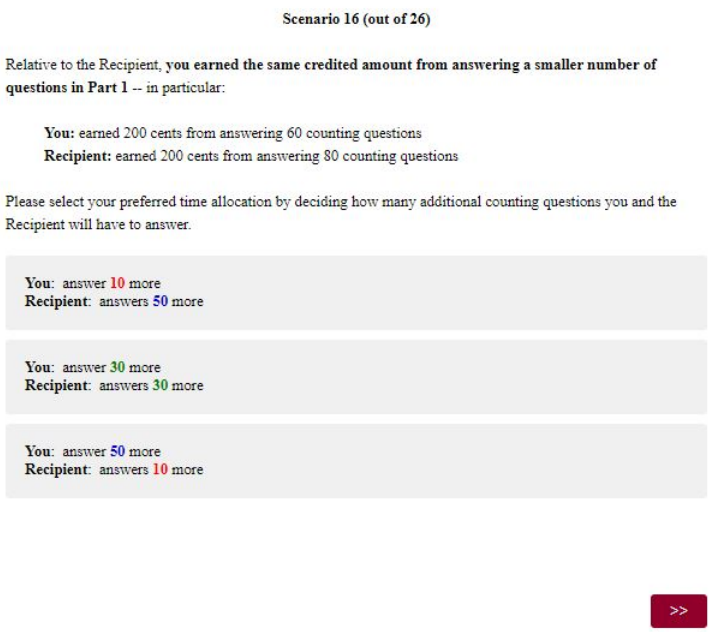


Figure A.30: Example of a Time Decision



After completing all 26 decisions in Part 3, one of their decisions is randomly selected as the decision-that-counts. If that decision required them to complete more counting questions, they were then required to complete more counting questions.[40]

[40]In the decision-that-counts, subjects knew that their choice would be implemented with a 90% chance and

Finally, to complete the study, each subject must complete any additional counting questions that they are required to complete according to the decision-that-counts and then answer a follow-up survey that collects socio-demographic information.

After the study is completed, each subject receives their \$6 completion payment as well as a bonus payment equal to any additional payment they earned from the decision-that-counts.[41] Note that the decision-that-counts was randomly selected from all of the decisions subjects made and that, in the decision-that-counts, subjects knew that their choice would be implemented with a 90% chance and would be replaced by the corresponding decision of a subject from another version of the study with a 10% chance.[42]

would be replaced by the corresponding decision of a subject from another version of the study with a 10% chance. The randomly selected decision turned out to be the row on the M_{50} multiple price list where the choice was between: (1) completing an additional 50 tasks or (2) giving up 92 cents. With a 90% chance, the subject had to complete an additional 50 tasks at the end of the study—if they chose (1)—or to forgo 92 cents and thus only receive 108 cents $(200 - 92)$ as bonus payment—if they chose (2). With a 10% chance, they had to forgo the 92 cents regardless of what they chose, because this was the option chosen by a subject who was randomly selected from the *Money & Time* and *Money & Time, Uncertain Endowments* versions.

[41]The completion fee and study length are higher in the *Money & Time, First Person* version than the other *Money & Time* versions, since subjects have to complete at least 60 time-burning tasks in this study version.

[42]The randomly selected decision turned out to be the row on the M_{50} multiple price list where the choice was between: (1) completing an additional 50 tasks or (2) giving up 92 cents. With a 90% chance, the subject had to complete an additional 50 tasks at the end of the study—if they chose (1)—or to forgo 92 cents and thus only receive 108 cents $(200 - 92)$ as bonus payment—if they chose (2). With a 10% chance, they had to forgo the 92 cents regardless of what they chose, because this was the option chosen by a subject who was randomly selected from the *Money & Time* and *Money & Time, Uncertain Endowments* versions.

A.6 Experimental Instructions: The *Money & Time, Uncertain Endowments* version

For this version, all that differs from the *Money & Time* version (see Appendix A.4) is Part 3. In particular, Part 3 of the *Money & Time, Uncertain Endowments* version involves 22 decisions that are different than the 26 decisions in Part 3 of the *Money & Time* version. These 22 decisions arise from 11 unique endowment sets that only differ in the endowments of the second participants, since the first participants are always endowed with 200 cents from answering 60 counting questions. See Table B.15 for details on these 11 endowment sets. Also, while every subject faces the same decisions, the order of these 22 decisions is randomized at the subject level as follows. Each subject is randomized to either make the 11 money decisions first or the 11 time decisions first. Within each set of 11 decisions, the order of the endowments for the second participants is also randomized. Figure A.31 shows how the instructions for Part 3 are explained and the corresponding understanding questions that each subject must answer correctly in order to proceed to make their 22 decisions. Figure A.32 shows an example of a money decision. Figure A.33 shows an example of a time decision.

Figure A.31: Part 3 Instructions

Allocators and Recipients: Allocators and Recipients will be Mturk workers who will complete a different version of this study. As described earlier, the Allocators will be Mturk workers who will have to answer 60 (instead of 10) counting questions in Part 1 and will earn a credited amount of 200 cents from doing so. Recipients, however, may have to answer a different number of counting questions in Part 1 and may earn a different credited amount from doing so.

In "money" scenarios, Allocators will be randomly matched with Recipients and told to indicate their preferred "money allocations." Money allocations indicate how much money the Allocators must give up from their credited amounts and how much money the Recipients must give up from their credited amounts to complete this study.

In "time" scenarios, Allocators will be randomly matched with Recipients and told to indicate their preferred "time allocations." Time allocations indicate how many additional counting questions the Allocators must answer and how many additional counting questions the Recipients must answer to complete this study.

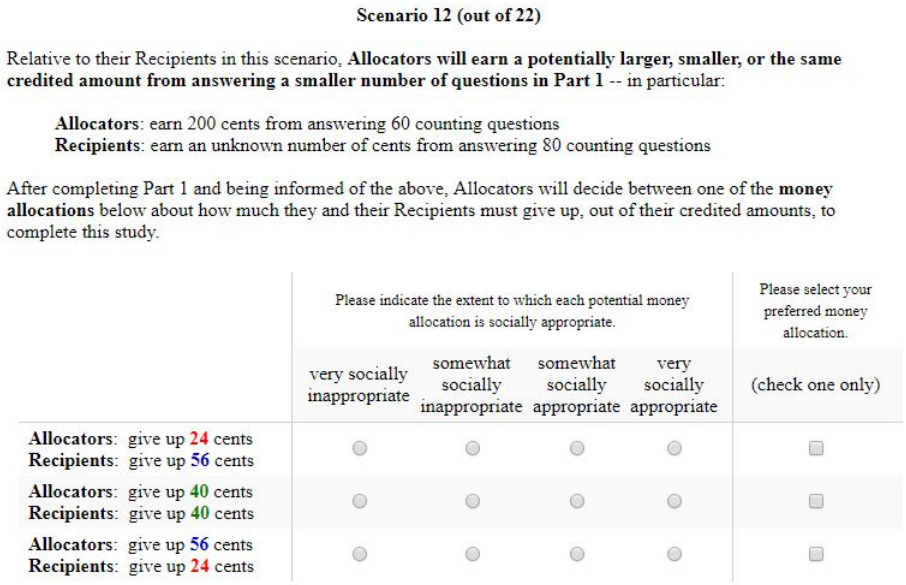
When evaluating these scenarios, Allocators will be told the exact number of counting questions the Recipients will have to answer in Part 1 unless they are told that Recipients will have to answer an "unknown" number of counting questions. When Allocators are told the Recipients will have to answer an "unknown" number of counting questions, Allocators will know that there is an equal chance that the Recipients will have to answer 20, 40, 60, 80, or 100 counting questions. Similarly, Allocators will be told the exact credited amounts the Recipients will earn from answering counting questions unless they are told Recipients will earn "unknown" credited amounts. When Allocators are told the Recipients will earn "unknown" credited amounts from answering counting questions, Allocators will know that there is an equal chance that the Recipients will earn 196, 198, 200, 202, or 204 cents.

Decision-that-Counts for Allocators and Recipients: One decision that the Allocators make will be randomly selected and called the decision-that-counts. If the decision-that-counts comes from one of the time or money scenarios, the Allocators' preferred allocation will be implemented with a 90% chance and not implemented with a 10% chance. If the Allocators' preferred allocation is not implemented, someone who completes this version of the study (which includes you) will be randomly selected to be the "Judge." The Judge's preferred allocation for the relevant scenario would then be implemented.

Your Decisions: In Part 3 of the study, please indicate your preferred allocation for each scenario in case you are randomly selected to be the Judge. Also, please evaluate whether each potential allocation that an Allocator could make is "very socially inappropriate," "somewhat socially inappropriate," "somewhat socially appropriate," or "very socially appropriate."

Evaluation-that-Counts for Your Bonus Payment: We will randomly select one potential allocation that an Allocator could make from one of the scenarios. Your evaluation of that potential allocation will be called your evaluation-that-counts. If your evaluation-that-counts was the same as the evaluation made by most Mturk workers who complete this study, you will receive $1 in bonus payment. Otherwise, you will receive no additional bonus payment.

Figure A.32: Example of a Money Decision



Scenario 12 (out of 22)

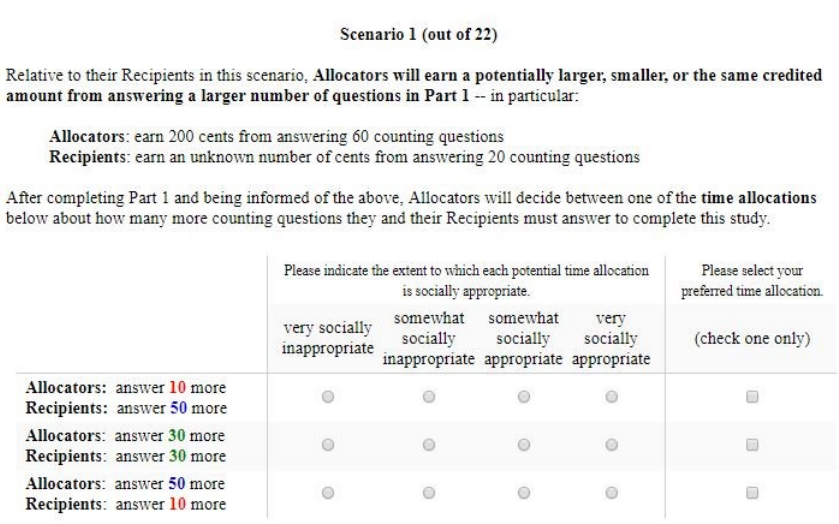
Relative to their Recipients in this scenario, **Allocators will earn a potentially larger, smaller, or the same credited amount from answering a smaller number of questions in Part 1** -- in particular:

Allocators: earn 200 cents from answering 60 counting questions
Recipients: earn an unknown number of cents from answering 80 counting questions

After completing Part 1 and being informed of the above, Allocators will decide between one of the **money allocations** below about how much they and their Recipients must give up, out of their credited amounts, to complete this study.

	Please indicate the extent to which each potential money allocation is socially appropriate.				Please select your preferred money allocation.
	very socially inappropriate	somewhat socially inappropriate	somewhat socially appropriate	very socially appropriate	(check one only)
Allocators: give up **24** cents **Recipients**: give up **56** cents	○	○	○	○	☐
Allocators: give up **40** cents **Recipients**: give up **40** cents	○	○	○	○	☐
Allocators: give up **56** cents **Recipients**: give up **24** cents	○	○	○	○	☐

Figure A.33: Example of a Time Decision



Scenario 1 (out of 22)

Relative to their Recipients in this scenario, **Allocators will earn a potentially larger, smaller, or the same credited amount from answering a larger number of questions in Part 1** -- in particular:

Allocators: earn 200 cents from answering 60 counting questions
Recipients: earn an unknown number of cents from answering 20 counting questions

After completing Part 1 and being informed of the above, Allocators will decide between one of the **time allocations** below about how many more counting questions they and their Recipients must answer to complete this study.

	Please indicate the extent to which each potential time allocation is socially appropriate.				Please select your preferred time allocation.
	very socially inappropriate	somewhat socially inappropriate	somewhat socially appropriate	very socially appropriate	(check one only)
Allocators: answer **10** more **Recipients:** answer **50** more	○	○	○	○	☐
Allocators: answer **30** more **Recipients**: answer **30** more	○	○	○	○	☐
Allocators: answer **50** more **Recipients**: answer **10** more	○	○	○	○	☐

B Additional Tables and Results

B.1 Additional Tables and Results: The *Tokens* version

Table B.1: *Tokens* version: example small-token decision from each scenario

Scenario A	**Scenario B**	**Scenario C**
Endowments: P1: 140 small, 70 large ($2.80) P2: 140 small, 70 large ($2.80)	**Endowments:** P1: 140 small, 70 large ($2.80) P2: 180 small, 50 large ($2.80)	**Endowments:** P1: 140 small, 70 large ($2.80) P2: 140 small, 90 large ($3.20)
P1, P2 give up: • 20, 60 → No equity • 40, 40 → O-equity, N-equity, 50/50-split • 60, 20 → No equity	**P1, P2 give up:** • 20, 60 → N-equity • 40, 40 → O-equity, 50/50-split • 60, 20 → No equity	**P1, P2 give up:** • 20, 60 → O-equity • 40, 40 → N-equity, 50/50-split • 60, 20 → No equity

The following abbreviations are used: P1 for the first participant, P2 for the second participant. O-equity, N-equity, and 50/50-split are as defined in the main text. Since these examples involve small-token decisions, N-equity is achieved whenever both participants end up with the same number of small tokens.

Table B.2: *Tokens* version: equity arising from choices by scenario

	Small-token choice diff of:			Large-token choice diff of:		
	$+\Delta S$	0	$-\Delta S$	$+\Delta L$	0	$-\Delta L$
	(1)	(2)	(3)	(4)	(5)	(6)
		Scenario A:			**Scenario A**:	
endow diff of $0S, 0L$		O-equity, 50/50-split, N-equity			O-equity, 50/50-split, N-equity	
		Scenario B:			**Scenario B**:	
endow diff of $-\Delta S, +\Delta L$	N-equity	O-equity, 50/50-split			O-equity, 50/50-split	N-equity
endow diff of $+\Delta S, -\Delta L$		O-equity, 50/50-split	N-equity	N-equity	O-equity, 50/50-split	
		Scenario C:			**Scenario D**:	
endow diff of $0S, -\Delta L$	O-equity	50/50-split, N-equity		O-equity, N-equity	50/50-split	
endow diff of $0S, +\Delta L$		50/50-split, N-equity	O-equity		50/50-split	O-equity, N-equity
		Scenario D:			**Scenario C**:	
endow diff of $-\Delta S, 0L$	O-equity, N-equity	50/50-split		O-equity	50/50-split, N-equity	
endow diff of $+\Delta S, 0L$		50/50-split	O-equity, N-equity		50/50-split, N-equity	O-equity
		Scenario E:			**Scenario F**:	
endow diff of $-\frac{1}{2}\Delta S, 0L$		50/50-split			50/50-split, N-equity	
endow diff of $+\frac{1}{2}\Delta S, 0L$		50/50-split			50/50-split, N-equity	
		Scenario F:			**Scenario E**:	
endow diff of $0S, -\frac{1}{2}\Delta L$		50/50-split, N-equity			50/50-split	
endow diff of $0S, +\frac{1}{2}\Delta L$		50/50-split, N-equity			50/50-split	
		Scenario G:			**Scenario G**:	
endow diff of $-\Delta S - \Delta L$	N-equity	50/50-split		N-equity	50/50-split	
endow diff of $+\Delta S + \Delta L$		50/50-split	N-equity		59/50-split	N-equity

A choice achieves **O-equity** if it results in both participants ending up with (after accounting for initial endowments and the choice) an equal amount of money. A small (large) token choice achieves a **50/50-split** if it requires both participants to sacrifice an equal number of small (large) tokens and **N-equity** if it results in both participants ending up with (after accounting for initial endowments and the choice) an equal number of small (large) tokens. Differences in endowments and choice indicate the extent to which endowments and choices favor the first participant relative to the second participant. In particular, ΔS implies the first participant is relatively favored by 40 small tokens while ΔL implies the first participant is relatively favored by 20 large tokens. Since the first participant is always endowed with 140 small tokens and 70 large tokens, the first/second participant has $(140S, 70L)/(140S, 70L)$ given an endow diff of $(0S, 0L)$; $(140S, 70L)/(180S, 70L)$ given an endow diff of $(-\Delta S, 0)$; $(140S, 70L)/(100S, 70L)$ given an endow diff of $(+\Delta S, 0)$; $(140S, 70L)/(180S, 50L)$ given an endow diff of $(-\Delta S, +\Delta L)$; $(140S, 70L)/(100S, 90L)$ given an endow diff of $(+\Delta S, -\Delta L)$; $(140S, 70L)/(140S, 90L)$ given an endow diff of $(0S, -\Delta L)$; $(140S, 70L)/(140S, 50L)$ given an endow diff of $(0S, +\Delta L)$, $(140S, 70L)/(160S, 70L)$ given an endow diff of $(-\frac{1}{2}\Delta S, 0L)$; $(140S, 70L)/(120S, 70L)$ given an endow diff of $(+\frac{1}{2}\Delta S, 0L)$; $(140S, 70L)/(140S, 80L)$ given an endow diff of $(0S, -\frac{1}{2}\Delta L)$; $(140S, 70L)/(140S, 60L)$ given an endow diff of $(0S, +\frac{1}{2}\Delta L)$; $(140S, 70L)/(180S, 90L)$ given an endow diff of $(-\Delta S - \Delta L)$; and $(140S, 70L)/(100S, 70L)$ given an endow diff of $(+\Delta S + \Delta L)$. Moreover, since choices always require participants to jointly sacrifice 80 small tokens or 40 large tokens, the first/second participant must give up 40/40 small tokens given a choice difference of $0S$; 20/60 small tokens given a choice difference of $+\Delta S$; 60/20 small tokens given a choice difference of $-\Delta S$; 20/20 large tokens given a choice difference of $0L$; 10/30 large tokens given a choice difference of $+\Delta L$; and 30/10 large tokens given a choice difference of $-\Delta L$.

Figure B.1: *Tokens* version: choices in additional scenarios

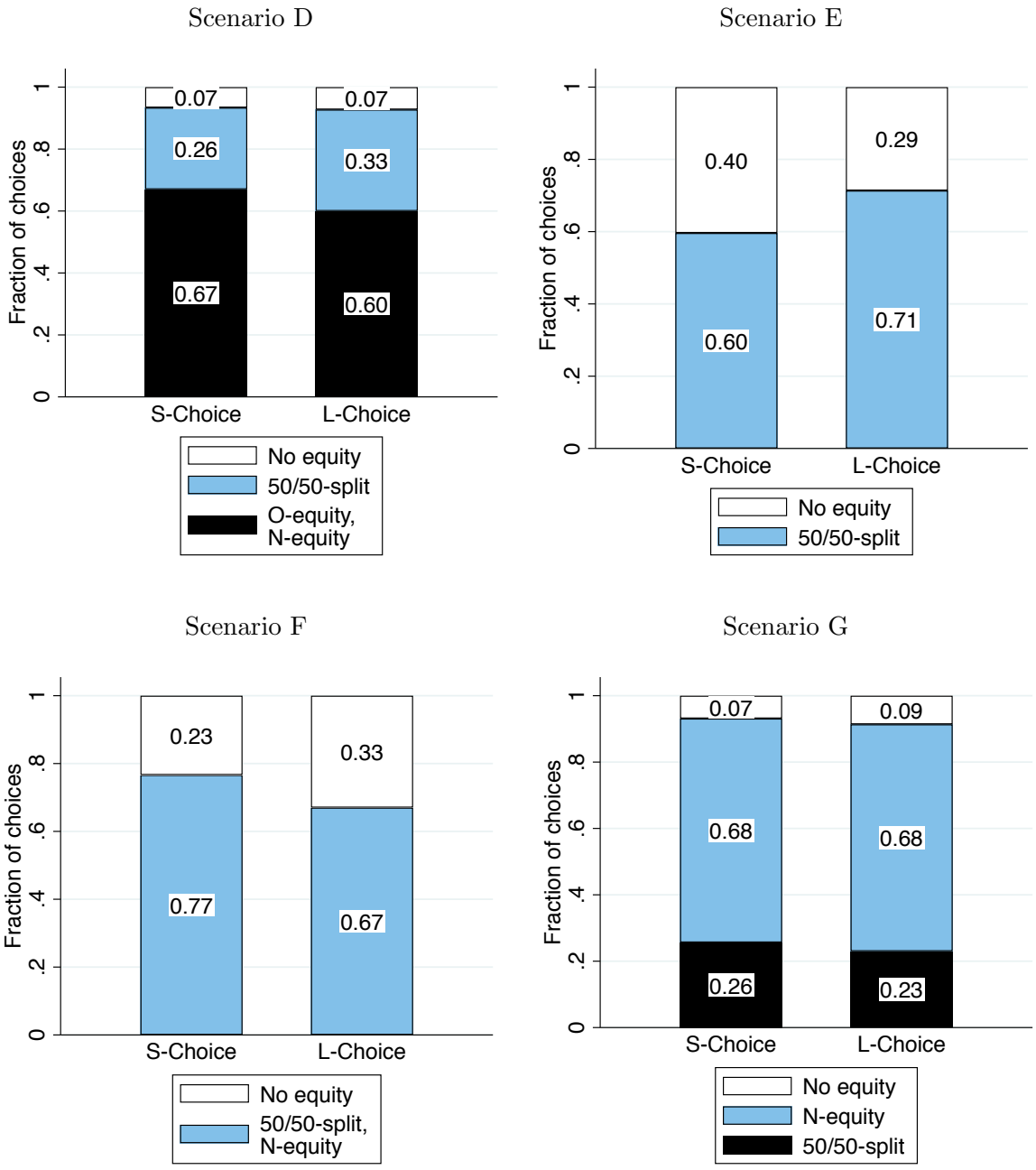


Table B.3: *Tokens* version: robustness regression results from linear probability models of forgoing O-equity

	Full sample with subject FEs not included	Full sample with subject FEs included	Sample restricted to subjects who always achieve O-equity in Scenario A
	(1)	(2)	(3)
N-equity $\not\Longrightarrow$ *O-equity*	0.34***	0.34***	0.39***
	(0.02)	(0.02)	(0.02)
N-equity and 50/50-split $\not\Longrightarrow$ *O-equity*	0.46***	0.46***	0.53***
	(0.02)	(0.02)	(0.02)
Constant	0.09***	0.08***	0.00
	(0.01)	(0.01)	(0.00)
Observations	4000	4000	3500

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors are clustered at the subject-level and shown in parentheses. The results are from a linear probability model of forgoing O-equity. ***N-equity*** $\not\Longrightarrow$ ***O-equity*** is an indicator that the choice that achieves N-equity does not achieve O-equity; and ***N-equity and 50/50-split*** $\not\Longrightarrow$ ***O-equity*** is an indicator that the choice that achieves N-equity and a 50/50-split does not achieve O-equity. Given our perfectly balanced sample and perfectly symmetric treatment variation within subject, the inclusion of subject-level fixed effects is not meant to test whether the coefficient estimates change. Instead, we include these effects to test whether the statistical precision of our results persist. Data are from the decisions of subjects in Scenarios A–C in the *Tokens* version of our study.

B.2 Additional Tables and Results: The *Tokens, First Person* version

Figure B.2: *Tokens, First Person* version: choices in additional scenarios

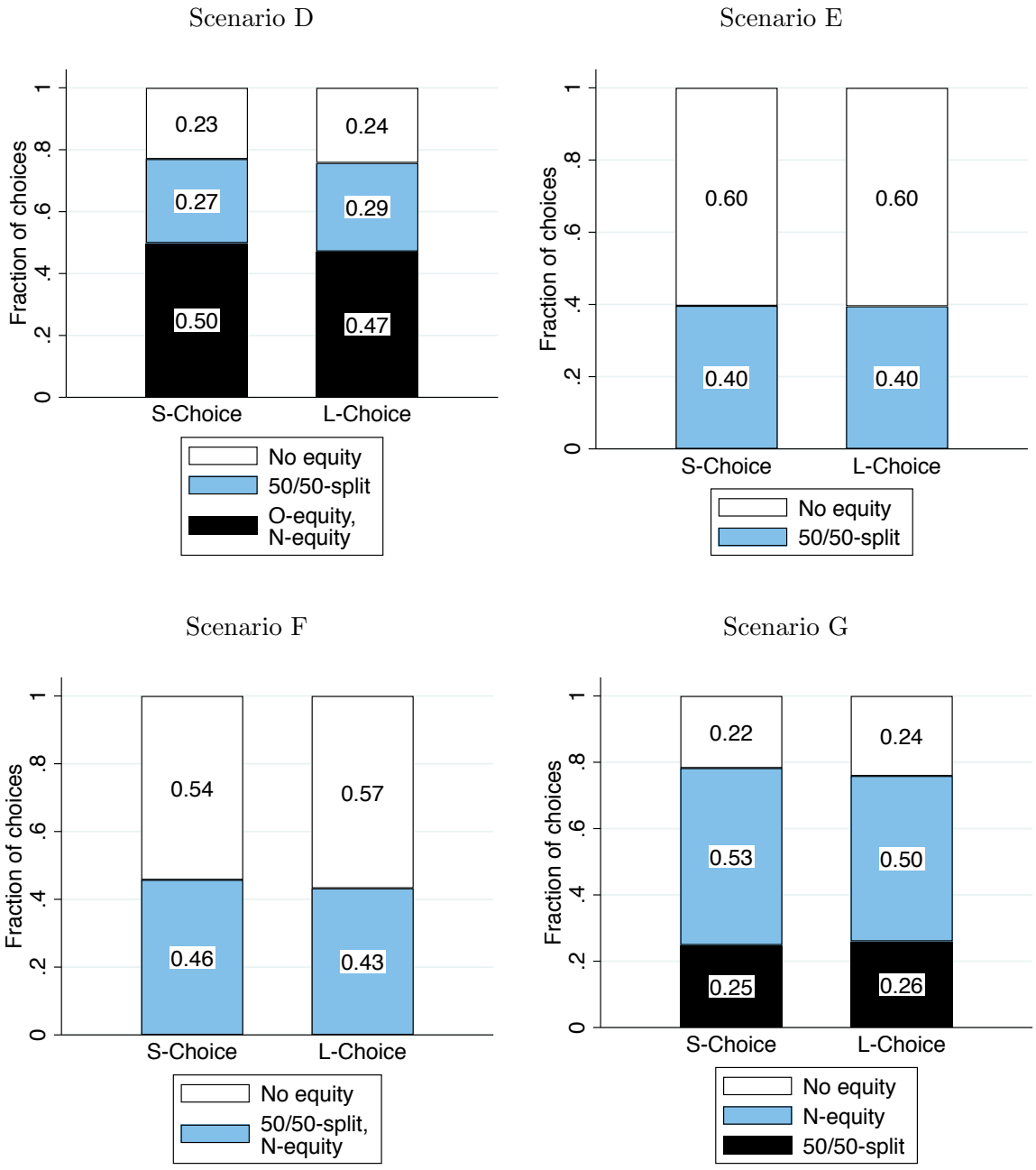


Table B.4: *Tokens, First Person* version: regression results from linear probability models of forgoing O-equity

	Allocation decisions about			
	small tokens	large tokens	small & large tokens	
	(1)	(2)	(3)	(4)
N-equity $\not\Rightarrow$ *O-equity*	0.21***	0.21***	0.21***	0.21***
	(0.02)	(0.02)	(0.02)	(0.02)
N-equity and 50/50-split $\not\Rightarrow$ *O-equity*	0.16***	0.16***	0.16***	0.16***
	(0.03)	(0.03)	(0.03)	(0.03)
L-choice				0.01
				(0.02)
*L-choice**(*N-equity* $\not\Rightarrow$ *O-equity*)				0.00
				(0.03)
*L-choice**(*N-equity and 50/50-split* $\not\Rightarrow$ O-equity)				-0.00
				(0.03)
Constant	0.45***	0.46***	0.45***	0.45***
	(0.02)	(0.02)	(0.02)	(0.02)
Observations	2000	2000	4000	4000

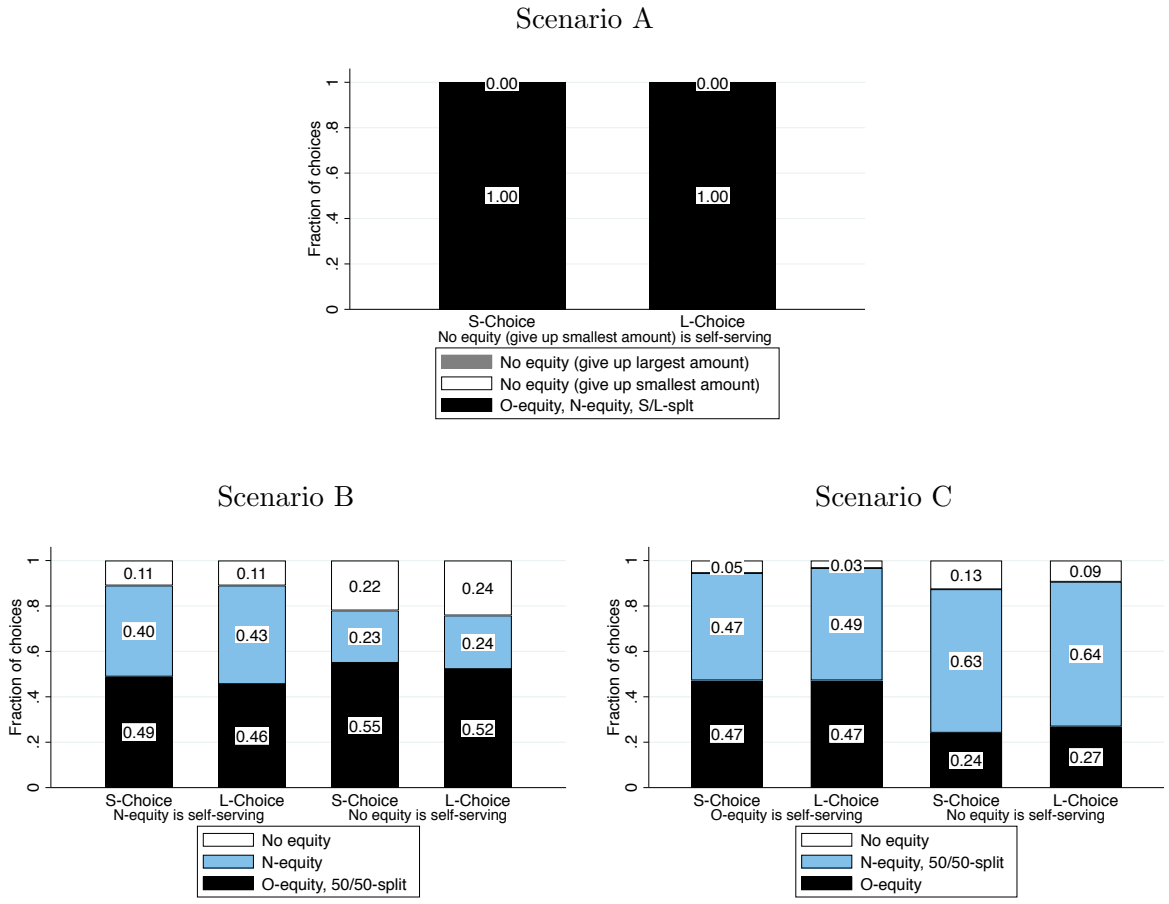
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors are clustered at the subject-level and shown in parentheses. The results are from a linear probability model of forgoing O-equity. ***N-equity*** $\not\Rightarrow$ ***O-equity*** is an indicator that the choice that achieves N-equity does not achieve O-equity; and ***N-equity and 50/50-split*** $\not\Rightarrow$ ***O-equity*** is an indicator that the choice that achieves N-equity and a 50/50-split does not achieve O-equity. ***L-choice*** is an indicator for large-token decisions. Data are from the decisions of subjects in Scenarios A–C of the *Tokens, First Person* version of our study.

Table B.5: *Tokens, First Person* version: robustness regression results from linear probability models of forgoing O-equity

	Full sample with subject FEs		Sample restricted to subjects who are equity-concerned
	not included	included	
	(1)	(2)	(3)
N-equity $\not\Longrightarrow$ *O-equity*	0.21***	0.21***	0.50***
	(0.02)	(0.02)	(0.03)
N-equity and 50/50-split $\not\Longrightarrow$ *O-equity*	0.16***	0.16***	0.64***
	(0.03)	(0.03)	(0.02)
Constant	0.45***	0.65***	-0.05***
	(0.02)	(0.02)	(0.02)
Observations	4000	4000	1820

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors are clustered at the subject-level and shown in parentheses. The results are from a linear probability model of forgoing O-equity. ***N-equity*** $\not\Longrightarrow$ ***O-equity*** is an indicator that the choice that achieves N-equity does not achieve O-equity; and ***N-equity and 50/50-split*** $\not\Longrightarrow$ ***O-equity*** is an indicator that the choice that achieves N-equity and a 50/50-split does not achieve O-equity. ***L-choice*** is an indicator for large-token decisions. Given our perfectly balanced sample and perfectly symmetric treatment variation within subjects, the inclusion of subject-level fixed effects is not meant to test whether the coefficient estimates change. Instead, we include these effects to test whether the statistical precision of our results persist. Subjects who are equity-concerned (shown in Column 3) are those who always achieve O-equity in Scenario A. Data are from the decisions of subjects in Scenarios A–C of the *Tokens, First Person* version of our study.

Figure B.3: *Tokens, First Person* version: choices of equity-concerned subjects (who always achieve O-equity in Scenario A)



B.3 Additional Tables and Results: The *Tokens, Final Allocation* version

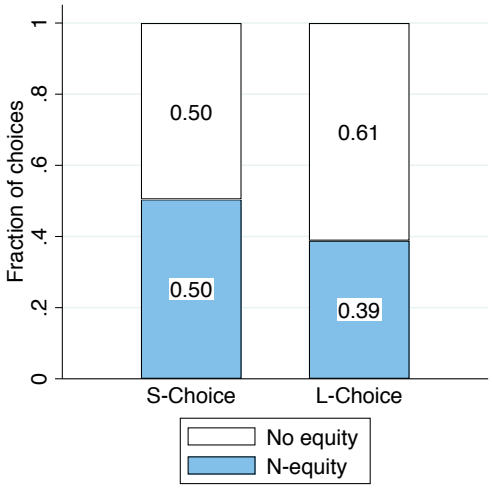
Table B.6: *Tokens, Final Allocation* version: equity arising from choices by scenario

	Small-token choice diff of:			Large-token choice diff of:		
	$+\Delta S$	0	$-\Delta S$	$+\Delta L$	0	$-\Delta L$
	(1)	(2)	(3)	(4)	(5)	(6)
		Scenario A′:			**Scenario A′**:	
Endow diff of $0S$					O-equity, N-equity	
Endow diff of $0L$		O-equity, N-equity				
		Scenario B′:			**Scenario B′**:	
Endow diff of $-\Delta S$				O-equity	N-equity	
Endow diff of $+\Delta S$					N-equity	O-equity
Endow diff of $-\Delta L$	O-equity	N-equity				
Endow diff of $+\Delta L$		N-equity	O-equity			
		Scenario C′:			**Scenario C′**:	
Endow diff of $-\frac{1}{2}\Delta S$					N-equity	
Endow diff of $+\frac{1}{2}\Delta S$					N-equity	
Endow diff of $-\frac{1}{2}\Delta L$		N-equity				
Endow diff of $+\frac{1}{2}\Delta L$		N-equity				

When participants make small (large) token choices, the allocations of large (small) tokens are directly determined. A choice achieves **O-equity** if it results in both participants ending up with an equal amount of money. A small (large) token choice achieves **N-equity** if it results in both participants ending up with an equal number of small (large) tokens (and note that this is also equivalent to a *50/50*-split). Differences in endowments and allocations indicate the extent to which endowments and allocations favor the first participant relative to the second participant. In particular, ΔS implies the first participant is relatively favored by 40 small tokens while ΔL implies the first participant is relatively favored by 20 large tokens. In small-token decisions, since the first participant is always endowed with 70 large tokens, the first/second participant has 70/70 small tokens given an endow diff of $0S$; 70/90 small tokens given an endow diff of $-\Delta S$; 70/50 small tokens given an endow diff of $+\Delta S$; 70/80 small tokens given an endow diff of $-\frac{1}{2}\Delta S$; and 70/60 small tokens given an endow diff of $+\frac{1}{2}\Delta S$. In large-token decisions, since the first participant is always endowed with 140 small tokens, the first/second participant has 140/140 large tokens given an endow diff of $0L$; 140/180 large tokens given an endow diff of $-\Delta L$; 140/100 large tokens given an endow diff of $+\Delta L$; 140/160 large tokens given an endow diff of $-\frac{1}{2}\Delta L$; and 140/120 large tokens given an endow diff of $+\frac{1}{2}\Delta L$. Moreover, the first/second participant is given 100/100 small tokens given a choice difference of $0S$; 120/80 small tokens given a choice difference of $+\Delta S$; 80/120 small tokens given a choice difference of $-\Delta S$; 50/50 large tokens given a choice difference of $0L$; 60/40 large tokens given a choice difference of $+\Delta L$; and 40/60 large tokens given a choice difference of $-\Delta L$.

Figure B.4: *Tokens, Final Allocation* version: choices

Scenario C′ (social-planner decisions)



Scenario C′ (first-person decisions)

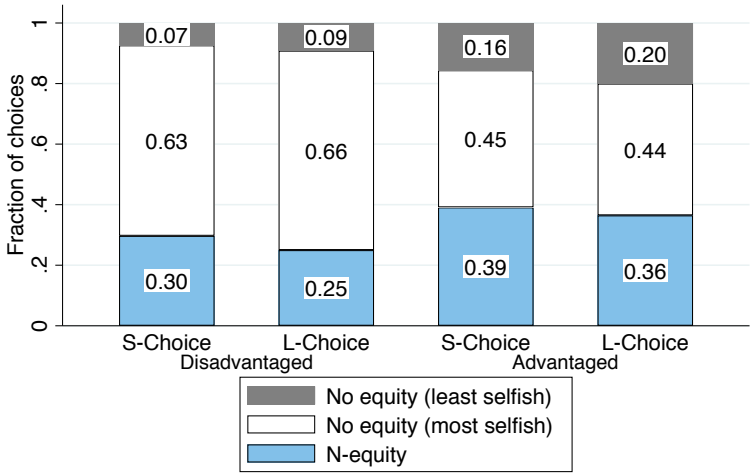


Table B.7: *Tokens, Final Allocation* version: regression results from linear probability models of forgoing O-equity

	Allocation decisions about			
	small tokens	large tokens	small & large tokens	
	(1)	(2)	(3)	(4)
Social-planner decisions				
N-equity $\not\Rightarrow$ *O-equity*	0.28***	0.24***	0.26***	0.28***
	(0.03)	(0.03)	(0.02)	(0.03)
L-choice				-0.01
				(0.02)
*L-choice**(*N-equity* $\not\Rightarrow$ *O-equity*)				-0.04*
				(0.02)
Constant	0.15***	0.14***	0.15***	0.15***
	(0.02)	(0.02)	(0.02)	(0.02)
Observations	1020	1020	2040	2040
First-person decisions				
N-equity $\not\Rightarrow$ *O-equity*	0.12***	0.10***	0.11***	0.12***
	(0.03)	(0.03)	(0.03)	(0.03)
L-choice				0.00
				(0.02)
*L-choice**(*N-equity* $\not\Rightarrow$ *O-equity*)				-0.02
				(0.02)
Constant	0.40***	0.40***	0.40***	0.40***
	(0.03)	(0.03)	(0.03)	(0.03)
Observations	1020	1020	2040	2040

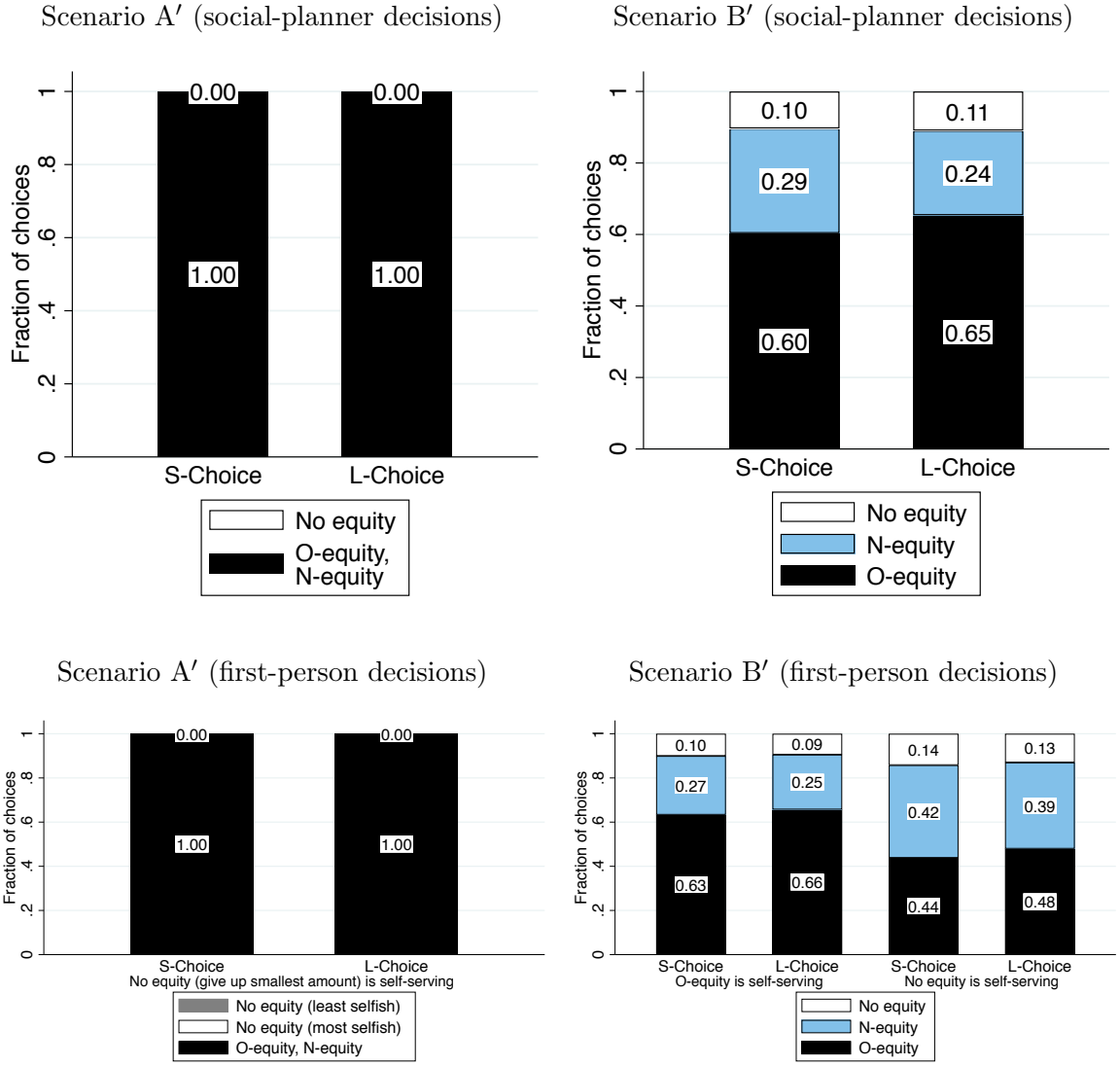
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors are clustered at the subject-level and shown in parentheses. The results are from a linear probability model of forgoing O-equity. ***N-equity*** $\not\Rightarrow$ ***O-equity*** is an indicator that the choice that achieves N-equity does not achieve O-equity. ***L-choice*** is an indicator for large-token decisions. Data are from the decisions of subjects among endowment sets where it is possible to achieve O-equity in the *Tokens, Final Allocations* version of our study.

Table B.8: *Tokens, Final Allocation* version: robustness regression results from linear probability models of forgoing O-equity

	Full sample with subject FEs?		Sample restricted to subjects who		
	not included	included	first make social-planner decisions	first make first-person decisions	are equity-concerned
	(1)	(2)	(3)	(4)	(5)
Social-planner decisions					
N-equity $\not\Rightarrow$ *O-equity*	0.26***	0.26***	0.28***	0.24***	0.34***
	(0.02)	(0.03)	(0.03)	(0.04)	(0.03)
Constant	0.15***	-0.17***	0.10***	0.19***	0.06***
	(0.02)	(0.02)	(0.02)	(0.03)	(0.01)
Observations	2040	2040	1032	1008	1116
First-person decisions					
N-equity $\not\Rightarrow$ *O-equity*	0.11***	0.11***	0.14***	0.08*	0.47***
	(0.03)	(0.03)	(0.04)	(0.04)	(0.03)
Constant	0.40***	-0.07***	0.35***	0.45***	0.00
	(0.03)	(0.02)	(0.03)	(0.04)	(0.00)
Observations	2040	2040	1032	1008	1116

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors are clustered at the subject-level and shown in parentheses. The results are from a linear probability model of forgoing O-equity. ***N-equity*** $\not\Rightarrow$ ***O-equity*** is an indicator that the choice that achieves N-equity does not achieve O-equity. ***L-choice*** is an indicator for large-token decisions. Given our perfectly balanced sample and perfectly symmetric treatment variation within subjects, the inclusion of subject-level fixed effects is not meant to test whether the coefficient estimates change. Instead, we include these effects to test whether the statistical precision of our results persist. Subjects who are equity-concerned (shown in Column 5) are those who always achieve O-equity in Scenario A′. Data are from the decisions of subjects among endowment sets where it is possible to achieve O-equity in the *Tokens, Final Allocations* version of our study.

Figure B.5: *Tokens, Final Allocation* version: allocation choices among equity-concerned subjects who always achieve O-equity in Scenario A′



B.4 Additional Tables and Results: The *Money & Time* version

Table B.9: *Money & Time* version: equity arising from choices by scenario

	Money choice diff of:			Time choice diff of:		
	$+\Delta M$ (1)	0 (2)	$-\Delta M$ (3)	$+\Delta T$ (4)	0 (5)	$-\Delta T$ (6)
		Scenario A:			**Scenario A**:	
endow diff of 0		O-equity, N-equity, 50/50-split			O-equity, 50/50-split, N-equity	
		Scenario B:			**Scenario B**:	
endow diff of $-\Delta M, +\Delta T$	N-equity	O-equity, 50/50-split			O-equity, 50/50-split	N-equity
endow diff of $+\Delta M, -\Delta T$		O-equity, 50/50-split	N-equity	N-equity	O-equity, 50/50-split	
		Scenario C:			**Scenario D**:	
endow diff of $-\Delta T$	O-equity	50/50-split, N-equity		O-equity, N-equity	50/50-split	
endow diff of $+\Delta T$		50/50-split, N-equity	O-equity		50/50-split	O-equity, N-equity
		Scenario D:			**Scenario C**:	
endow diff of $-\Delta M$	O-equity, N-equity	50/50-split		O-equity	50/50-split, N-equity	
endow diff of $+\Delta M$		50/50-split	O-equity, N-equity		50/50-split, N-equity	O-equity
		Scenario E:			**Scenario F**:	
endow diff of $-\frac{1}{2}\Delta M$		50/50-split			50/50-split, N-equity	
endow diff of $+\frac{1}{2}\Delta M$		50/50-split			50/50-split, N-equity	
		Scenario F:			**Scenario E**:	
endow diff of $-\frac{1}{2}\Delta T$		50/50-split, N-equity			50/50-split	
endow diff of $+\frac{1}{2}\Delta T$		50/50-split, N-equity			50/50-split	
		Scenario G:			**Scenario G**:	
endow diff of $-\Delta M - \Delta T$	N-equity	50/50-split		N-equity	50/50-split	
endow diff of $+\Delta M + \Delta T$		50/50-split	N-equity		50/50-split	N-equity

A choice achieves **O-equity** if both participants end up with an equal budget accounting for both money and time. A money (time) choice achieves a **50/50-split** if both participants sacrifice an equal amount of money (time) and **N-equity** if both participants end up with an equal amount of money (time). Differences in endowments and allocations indicate the extent to which they favor the first participant relative to the second participant (i.e., positive differences favor the first participant). We define $\Delta T = 40$ tasks and $\Delta M = M_{50} - M_{10}$ cents, where M_{10} and M_{50} are based on subject-specific responses to the multiple price lists (see Appendix C).

Figure B.6: *Money & Time* version: choices in additional scenarios

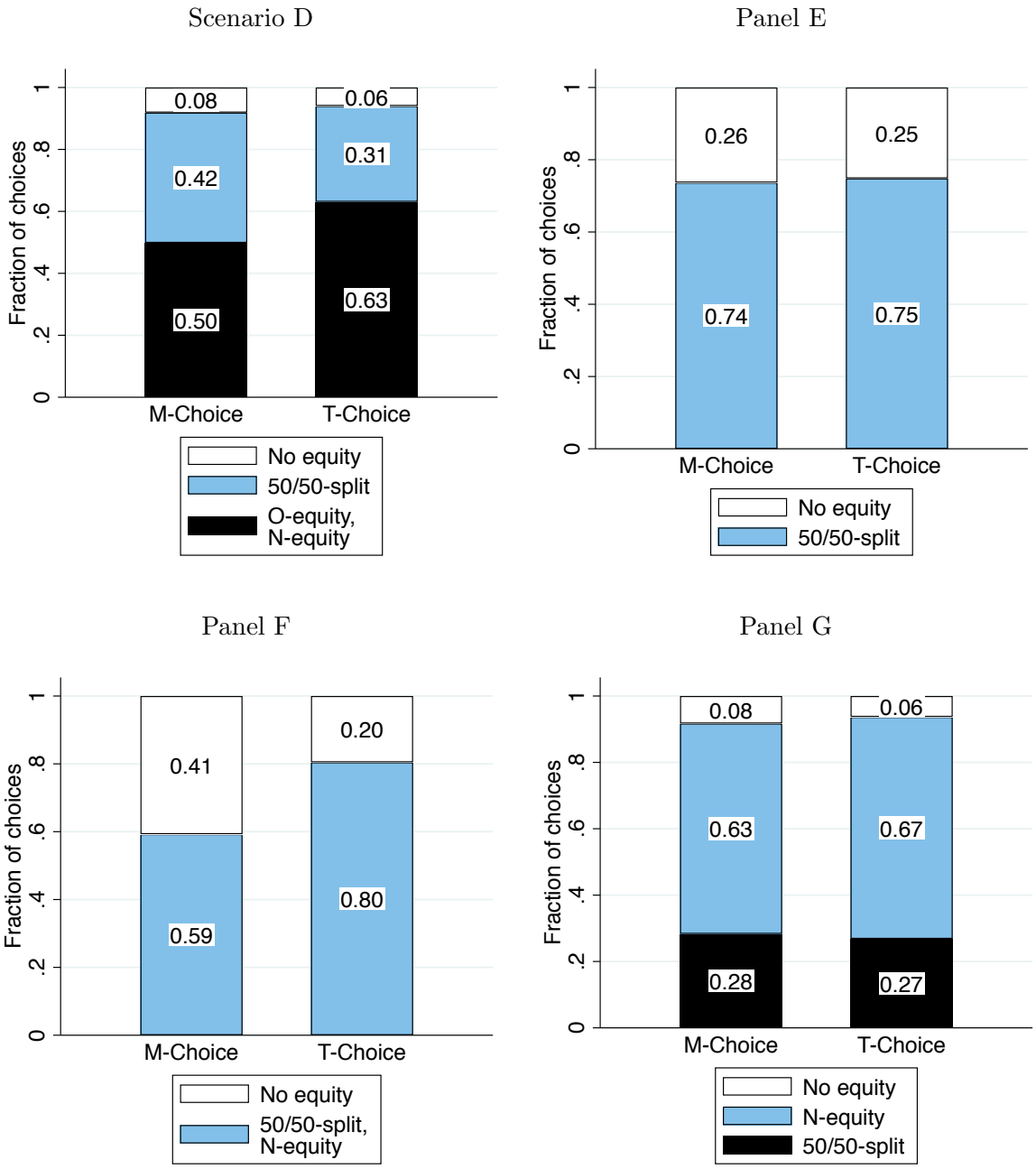
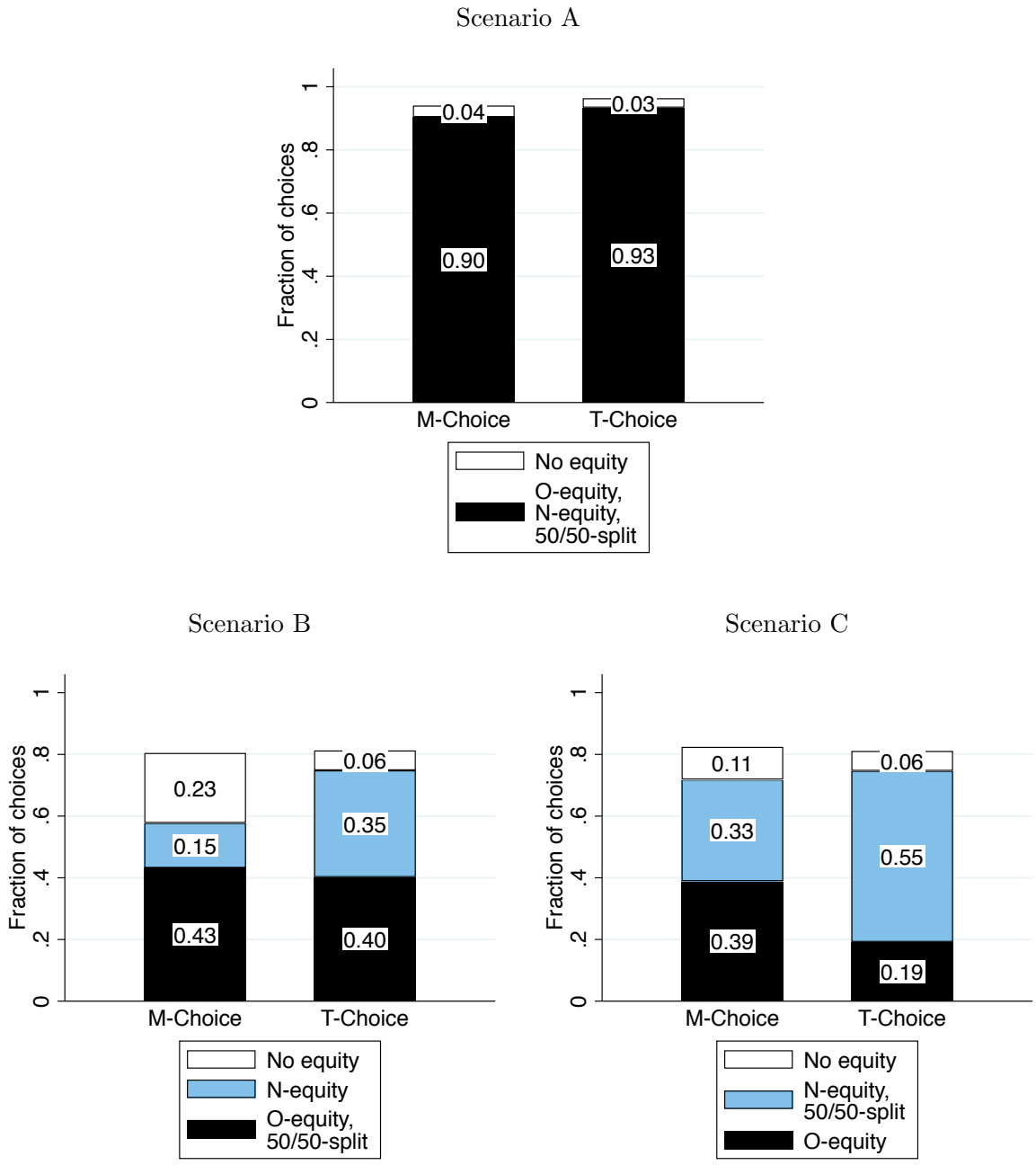


Table B.10: *Money & Time* version: robustness regression results from linear probability models of forgoing O-equity

	baseline sample with subject FEs		subjects with time costs that are			subjects with implied values calculated from		full sample regardless of normalized values
	not included	included	linear	concave	convex	inner-envelope	outer-envelope	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
N-equity $\not\Rightarrow$ *O-equity*	0.39***	0.39***	0.42***	0.36***	0.39***	0.42***	0.37***	0.35***
	(0.03)	(0.03)	(0.04)	(0.04)	(0.06)	(0.04)	(0.04)	(0.02)
N-equity and 50/50-split $\not\Rightarrow$ *O-equity*	0.47***	0.47***	0.44***	0.57***	0.41***	0.42***	0.53***	0.51***
	(0.03)	(0.03)	(0.04)	(0.05)	(0.07)	(0.04)	(0.04)	(0.02)
T-choice	-0.02	-0.02	-0.00	0.00	-0.08*	-0.01	-0.02	-0.01
	(0.01)	(0.01)	(0.01)	(0.02)	(0.04)	(0.02)	(0.02)	(0.01)
*T-choice**(*N-equity* $\not\Rightarrow$ *O-equity*)	0.07***	0.07**	0.10**	0.02	0.12*	0.06*	0.09**	0.05**
	(0.03)	(0.03)	(0.04)	(0.05)	(0.06)	(0.04)	(0.04)	(0.02)
*T-choice**(*N-equity and 50/50-split* $\not\Rightarrow$ *O-equity*)	0.23***	0.23***	0.30***	0.13**	0.25***	0.33***	0.14***	0.18***
	(0.03)	(0.03)	(0.04)	(0.06)	(0.08)	(0.04)	(0.04)	(0.03)
Constant	0.06***	-0.10***	0.05***	0.04**	0.12***	0.07***	0.05***	0.07***
	(0.01)	(0.01)	(0.02)	(0.02)	(0.04)	(0.02)	(0.02)	(0.01)
Observations	3020	3020	1420	1000	600	1500	1520	4000

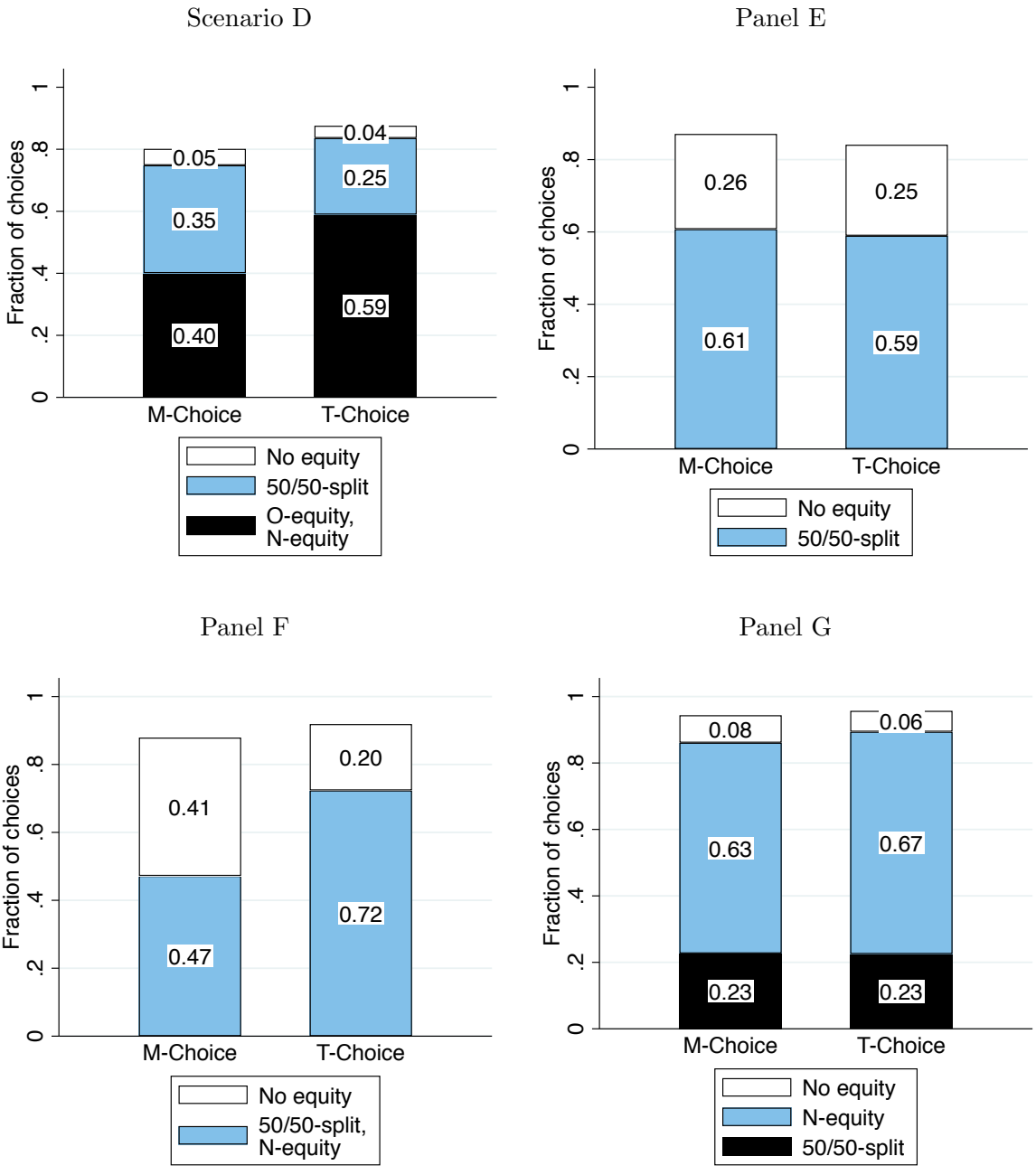
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors are clustered at the subject-level and shown in parentheses. The results are from a linear probability model of forgoing O-equity. ***N-equity*** $\not\Rightarrow$ ***O-equity*** is an indicator that the choice that achieves N-equity does not achieve O-equity; and ***N-equity and 50/50-split*** $\not\Rightarrow$ ***O-equity*** is an indicator that the choice that achieves N-equity and a 50/50-split does not achieve O-equity. ***T-choice*** is an indicator for time decisions. Given our perfectly balanced sample and perfectly symmetric treatment variation within subjects, the inclusion of subject-level fixed effects is not meant to test whether the coefficient estimates change. Instead, we include these effects to test whether the statistical precision of our results persist. Data are from the decisions of subjects—with accurately estimated exchange rates (except in Column 8)—in Scenarios A–C of the *Money & Time* version of our study.

Figure B.7: *Money & Time* version: normative choices



Note that we define the normative choice as the choice that is rated as more socially appropriate than the other two available choices in a decision. Cases in which no normative choices exist are excluded and explains why the bars do not add up to 1.

Figure B.8: *Money & Time* version: normative choices in additional scenarios



Note that we define the normative choice as the choice that is rated as more socially appropriate than the other two available choices in a decision. Cases in which no normative choices exist are excluded and explains why the bars do not add up to 1.

Table B.11: *Money & Time* version: regression results from linear probability models of the normative choice not achieving O-equity

	Allocation decisions about			
	money	time	money & time	
	(1)	(2)	(3)	(4)
N-equity $\not\Rightarrow$ *O-equity*	0.42***	0.47***	0.45***	0.42***
	(0.03)	(0.03)	(0.02)	(0.03)
N-equity and 50/50-split $\not\Rightarrow$ *O-equity*	0.49***	0.73***	0.61***	0.49***
	(0.03)	(0.02)	(0.02)	(0.03)
T-choice				-0.01
				(0.01)
*T-choice**(*N-equity* $\not\Rightarrow$ *O-equity*)				0.05*
				(0.03)
*T-choice**(*N-equity and 50/50-split* $\not\Rightarrow$ *O-equity*)				0.24***
				(0.03)
Constant	0.04***	0.03***	0.03***	0.04***
	(0.01)	(0.01)	(0.01)	(0.01)
Observations	1268	1272	2540	2540

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors are clustered at the subject-level and shown in parentheses. The results are from a linear probability model of the normative choice not achieving O-equity. Note that we define the normative choice as the choice that is rated as more socially appropriate than the other two available choices in a decision (and thus cases in which no normative choice exists are excluded). ***N-equity*** $\not\Rightarrow$ ***O-equity*** is an indicator that the choice that achieves N-equity does not achieve O-equity; and ***N-equity and 50/50-split*** $\not\Rightarrow$ ***O-equity*** is an indicator that the choice that achieves N-equity and a 50/50-split does not achieve O-equity. ***T-choice*** is an indicator for time decisions. Data are from the social appropriateness rating decisions of subjects—with accurately estimated exchange rates—in Scenarios A–C of the *Money & Time* version of our study.

Table B.12: *Money & Time* version: robustness regression results from linear probability models of the normative choice not achieving O-equity

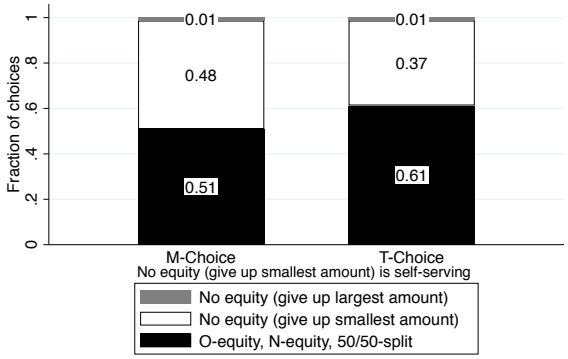
	baseline sample with subject FEs		subjects with time costs that are			subjects with implied values calculated from		full sample regardless of normalized values
	not included	included	linear	concave	convex	inner-envelope	outer-envelope	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
N-equity $\not\Rightarrow$ *O-equity*	0.42***	0.43***	0.47***	0.36***	0.43***	0.46***	0.39***	0.37***
	(0.03)	(0.03)	(0.04)	(0.05)	(0.07)	(0.04)	(0.04)	(0.02)
N-equity and 50/50-split $\not\Rightarrow$ *O-equity*	0.49***	0.48***	0.49***	0.52***	0.43***	0.44***	0.54***	0.53***
	(0.03)	(0.03)	(0.04)	(0.05)	(0.07)	(0.04)	(0.04)	(0.03)
T-choice	-0.01	-0.01	0.01	-0.00	-0.05	0.01	-0.02	-0.02
	(0.01)	(0.01)	(0.01)	(0.02)	(0.04)	(0.02)	(0.02)	(0.01)
*T-choice**(*N-equity* $\not\Rightarrow$ *O-equity*)	0.05*	0.05	0.04	0.06	0.06	0.04	0.06	0.05**
	(0.03)	(0.03)	(0.04)	(0.06)	(0.07)	(0.04)	(0.04)	(0.03)
*T-choice**(*N-equity and 50/50-split* $\not\Rightarrow$ *O-equity*)	0.24***	0.25***	0.30***	0.14**	0.26***	0.32***	0.17***	0.19***
	(0.03)	(0.04)	(0.05)	(0.05)	(0.09)	(0.05)	(0.05)	(0.03)
Constant	0.04***	-0.05***	0.01	0.05**	0.09**	0.04**	0.03**	0.05***
	(0.01)	(0.01)	(0.01)	(0.02)	(0.04)	(0.02)	(0.02)	(0.01)
Observations	2540	2540	1211	829	500	1277	1263	3330

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors are clustered at the subject-level and shown in parentheses. The results are from a linear probability model of the normative choice not achieving O-equity. Note that we define the normative choice as the choice that is rated as more socially appropriate than the other two available choices in a decision (and thus cases in which no normative choice exists are excluded). ***N-equity*** $\not\Rightarrow$ ***O-equity*** is an indicator that the choice that achieves N-equity does not achieve O-equity; and ***N-equity and 50/50-split*** $\not\Rightarrow$ ***O-equity*** is an indicator that the choice that achieves N-equity and a 50/50-split does not achieve O-equity. ***T-choice*** is an indicator for time decisions. Given our perfectly balanced sample and perfectly symmetric treatment variation within subjects, the inclusion of subject-level fixed effects is not meant to test whether the coefficient estimates change. Instead, we include these effects to test whether the statistical precision of our results persist. Data are from the decisions of subjects—with accurately estimated exchange rates (except in Column 8)—in Scenarios A–C the *Money & Time* version of our study.

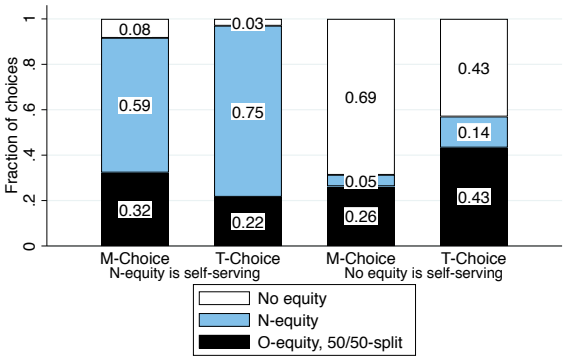
B.5 Additional Tables and Results: The *Money & Time, First Person* version

Figure B.9: *Money & Time, First Person* version: choices

Scenario A



Scenario B



Scenario C

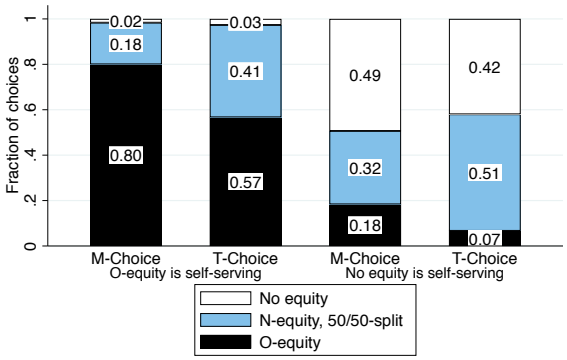


Figure B.10: *Money & Time, First Person* version: choices in additional scenarios

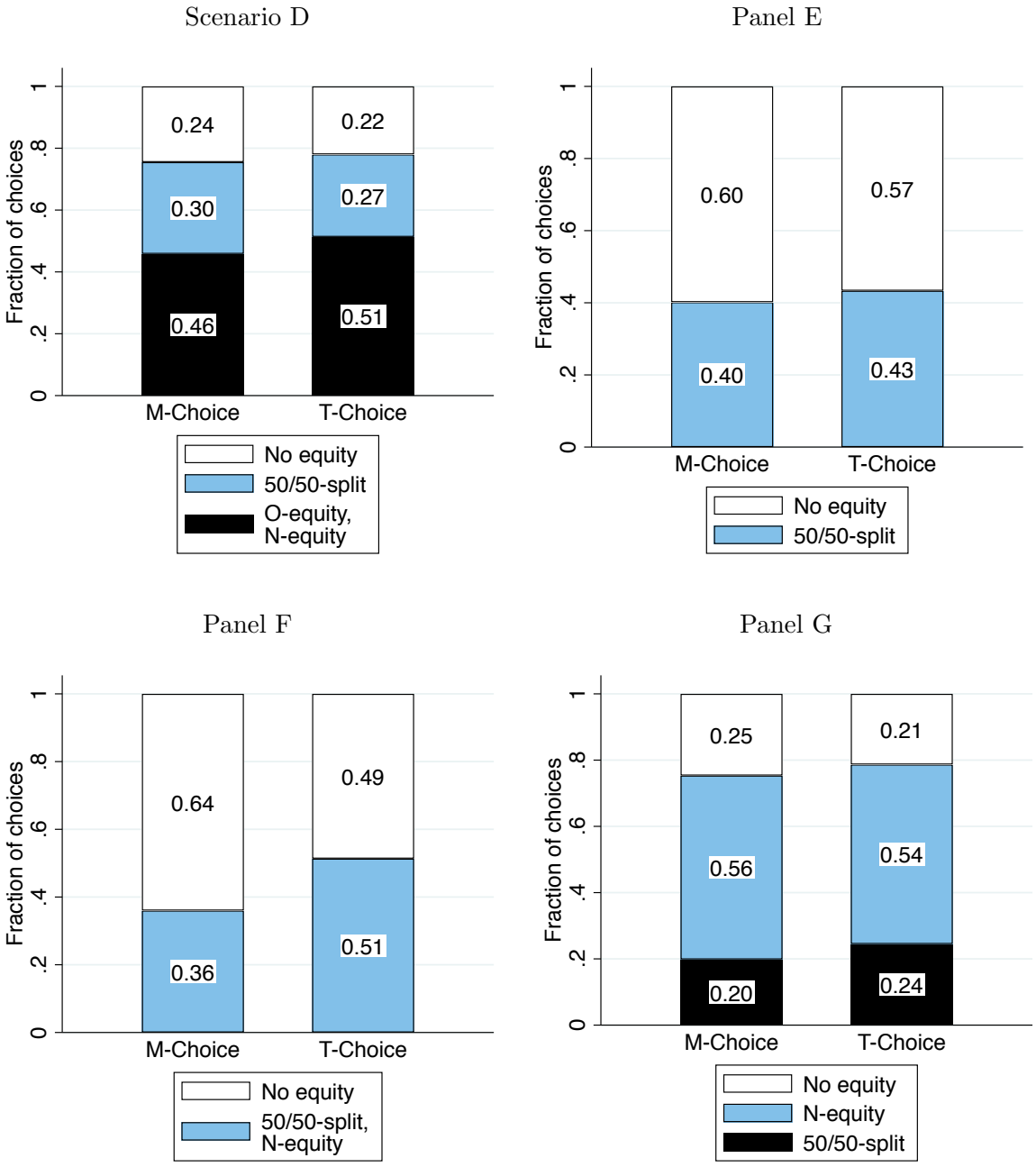


Table B.13: *Money & Time, First Person* version: regression results from linear probability models of forgoing O-equity

	Allocation decisions about			
	money	time	money & time	
	(1)	(2)	(3)	(4)
N-equity $\not\Rightarrow$ *O-equity*	0.22***	0.29***	0.25***	0.22***
	(0.02)	(0.02)	(0.02)	(0.02)
N-equity and 50/50-split $\not\Rightarrow$ *O-equity*	0.02	0.30***	0.16***	0.02
	(0.03)	(0.04)	(0.03)	(0.03)
T-choice				-0.10***
				(0.02)
*T-choice**(*N-equity* $\not\Rightarrow$ *O-equity*)				0.07***
				(0.02)
*T-choice**(*N-equity and 50/50-split* $\not\Rightarrow$ *O-equity*)				0.28***
				(0.03)
Constant	0.49***	0.39***	0.44***	0.49***
	(0.03)	(0.03)	(0.03)	(0.03)
Observations	1500	1500	3000	3000

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors are clustered at the subject-level and shown in parentheses. The results are from a linear probability model of forgoing O-equity. ***N-equity*** $\not\Rightarrow$ ***O-equity*** is an indicator that the choice that achieves N-equity does not achieve O-equity; and ***N-equity and 50/50-split*** $\not\Rightarrow$ ***O-equity*** is an indicator that the choice that achieves N-equity and a 50/50-split does not achieve O-equity. ***T-choice*** is an indicator for time decisions. Data are from the decisions of first participants—with accurately estimated exchange rates—in Scenarios A–C of the *Money & Time, First Person* version of our study.

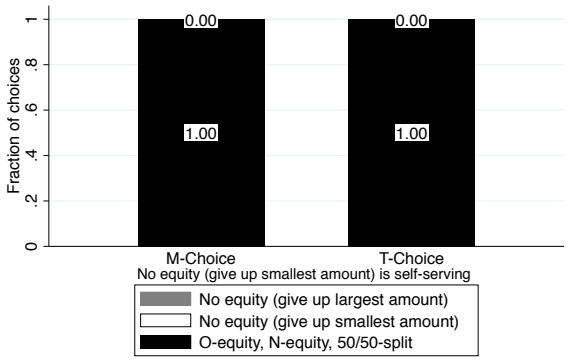
Table B.14: *Money & Time, First Person* version: robustness regression results from linear probability models of forgoing O-equity

	baseline sample with subject FEs		subjects with time costs that are			subjects with implied values calculated from		subjects with any normalized value	subjects who are equity-concerned
	not included	included	linear	concave	convex	inner-envelope	outer-envelope		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
N-equity $\not\Rightarrow$ *O-equity*	0.22***	0.22***	0.18***	0.26***	0.25***	0.23***	0.21***	0.20***	0.45***
	(0.02)	(0.02)	(0.03)	(0.05)	(0.05)	(0.04)	(0.03)	(0.02)	(0.03)
N-equity and 50/50-split $\not\Rightarrow$ *O-equity*	0.02	0.02	-0.09**	0.08	0.18**	0.05	0.00	0.02	0.51***
	(0.03)	(0.04)	(0.04)	(0.07)	(0.07)	(0.05)	(0.04)	(0.03)	(0.03)
T-choice	-0.10***	-0.10***	-0.13***	-0.08*	-0.07*	-0.07**	-0.12***	-0.11***	-0.00
	(0.02)	(0.02)	(0.03)	(0.04)	(0.04)	(0.03)	(0.03)	(0.02)	(.)
*T-choice**(*N-equity* $\not\Rightarrow$ *O-equity*)	0.07***	0.07***	0.10***	0.00	0.10*	0.07*	0.07**	0.05**	0.06*
	(0.02)	(0.03)	(0.03)	(0.05)	(0.06)	(0.04)	(0.03)	(0.02)	(0.03)
*T-choice**(*N-equity and 50/50-split* $\not\Rightarrow$ *O-equity*)	0.28***	0.28***	0.36***	0.17***	0.23***	0.23***	0.31***	0.25***	0.28***
	(0.03)	(0.03)	(0.05)	(0.06)	(0.06)	(0.05)	(0.04)	(0.03)	(0.04)
Constant	0.49***	0.69***	0.56***	0.46***	0.37***	0.46***	0.51***	0.52***	0.00
	(0.03)	(0.02)	(0.04)	(0.06)	(0.06)	(0.05)	(0.04)	(0.03)	(0.00)
Observations	3000	3000	1490	800	710	1200	1800	4000	1470

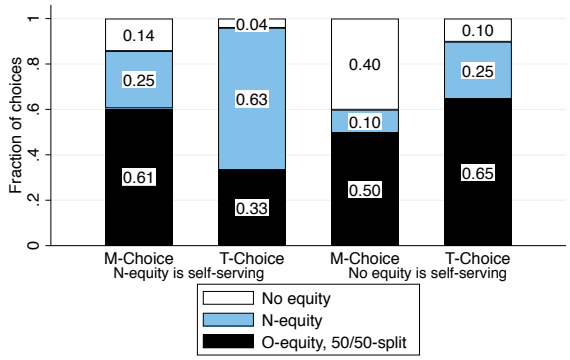
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors are clustered at the subject-level and shown in parentheses. The results are from a linear probability model of forgoing O-equity. ***N-equity*** $\not\Rightarrow$ ***O-equity*** is an indicator that the choice that achieves N-equity does not achieve O-equity; and ***N-equity and 50/50-split*** $\not\Rightarrow$ ***O-equity*** is an indicator that the choice that achieves N-equity and a 50/50-split does not achieve O-equity. ***T-choice*** is an indicator for time decisions. Given our perfectly balanced sample and perfectly symmetric treatment variation within subjects, the inclusion of subject-level fixed effects is not meant to test whether the coefficient estimates change. Instead, we include these effects to test whether the statistical precision of our results persist. Subjects who are equity-concerned (shown in Column 9) are those who always achieve O-equity in Scenario A. Data are from the decisions of subjects—with accurately estimated exchange rates (except in Column 8)—in Scenarios A–C of the *Money & Time, First Person* version of our study.

Figure B.11: *Money & Time, First Person* version: choices among equity-concerned subjects (who always achieve O-equity in Scenario A)

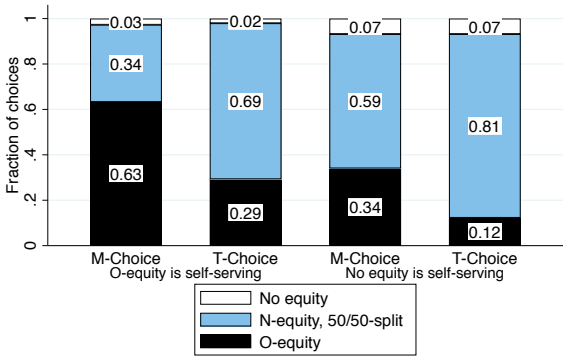
Scenario A



Scenario B



Scenario C



B.6 Additional Tables and Results: The *Money & Time, Uncertain Endowments* version

Table B.15: *Money & Time, Uncertain Endowments* version, equity arising from choices by scenario

	Money choice diff of:			Time choice diff of:		
	$+\Delta M$	0	$-\Delta M$	$+\Delta T$	0	$-\Delta T$
	(1)	(2)	(3)	(4)	(5)	(6)
		Scenario A1:			**Scenario A1**:	
endow diff of $E[T] = 0$		50/50-split, N-equity, E[O-equity]			50/50-split, N-equity, E[O-equity]	
		Scenario A2:			**Scenario A2**:	
endow diff of $E[M] = 0$		50/50-split, E[N-equity], E[O-equity]			50/50-split, E[N-equity], E[O-equity]	
		Scenario A3:			**Scenario A3**:	
endow diff of $E[M] = 0, E[T] = 0$		50/50-split, E[N-equity], E[O-equity]			50/50-split, E[N-equity], E[O-equity]	
		Scenario C:			**Scenario D**:	
endow diff of -ΔT, $E[M] = 0$	E[O-equity]	50/50-split, E[N-equity]		N-equity, E[O-equity]	50/50-split	
endow diff of $+\Delta T$, $E[M] = 0$		50/50-split, E[N-equity]	E[O-equity]		50/50-split	N-equity, E[O-equity]
		Scenario D:			**Scenario C**:	
endow diff of -ΔM, $E[T] = 0$	N-equity, E[O-equity]	50/50-split		E[O-equity]	50/50-split, E[N-equity]	
endow diff of $+\Delta M$, $E[T] = 0$		50/50-split	N-equity, E[O-equity]		50/50-split, E[N-equity]	E[O-equity]
		Scenario E:			**Scenario F**:	
endow diff of -$\frac{1}{2}\Delta M$, $E[T] = 0$		50/50-split			50/50-split, E[N-equity]	
endow diff of $+\frac{1}{2}\Delta M$, $E[T] = 0$		50/50-split			50/50-split, E[N-equity]	
		Scenario F:			**Scenario E**:	
endow diff of -$\frac{1}{2}\Delta T$, $E[M] = 0$		50/50-split, E[N-equity]			50/50-split	
endow diff of $+\frac{1}{2}\Delta T$, $E[M] = 0$		50/50-split, E[N-equity]			50/50-split	

A choice achieves **(Expected) O-equity** (i.e., E[O-equity]) if it results in both participants ending up with a budget of money and time that is equal in expectation. A money (time) choice achieves a **50/50-split** if it requires both participants to sacrifice an equal amount of money (time) and **(Expected) N-equity** (i.e., E[N-equity]) if it results in both participants ending up with an equal amount of money (time) in expectation. Differences in endowments and allocations indicate the extent to which endowments and allocations favor the first participant relative to the second participant (i.e., positive differences reflect better endowments and allocations for the first participant than the second participant). $E[M] = 0$ and $E[T] = 0$ indicate no differences in expectation for money and time, respecively. See definitions of ΔM, ΔT in Appendix C. .

Figure B.12: *Money & Time, Uncertain Endowments* version: choices

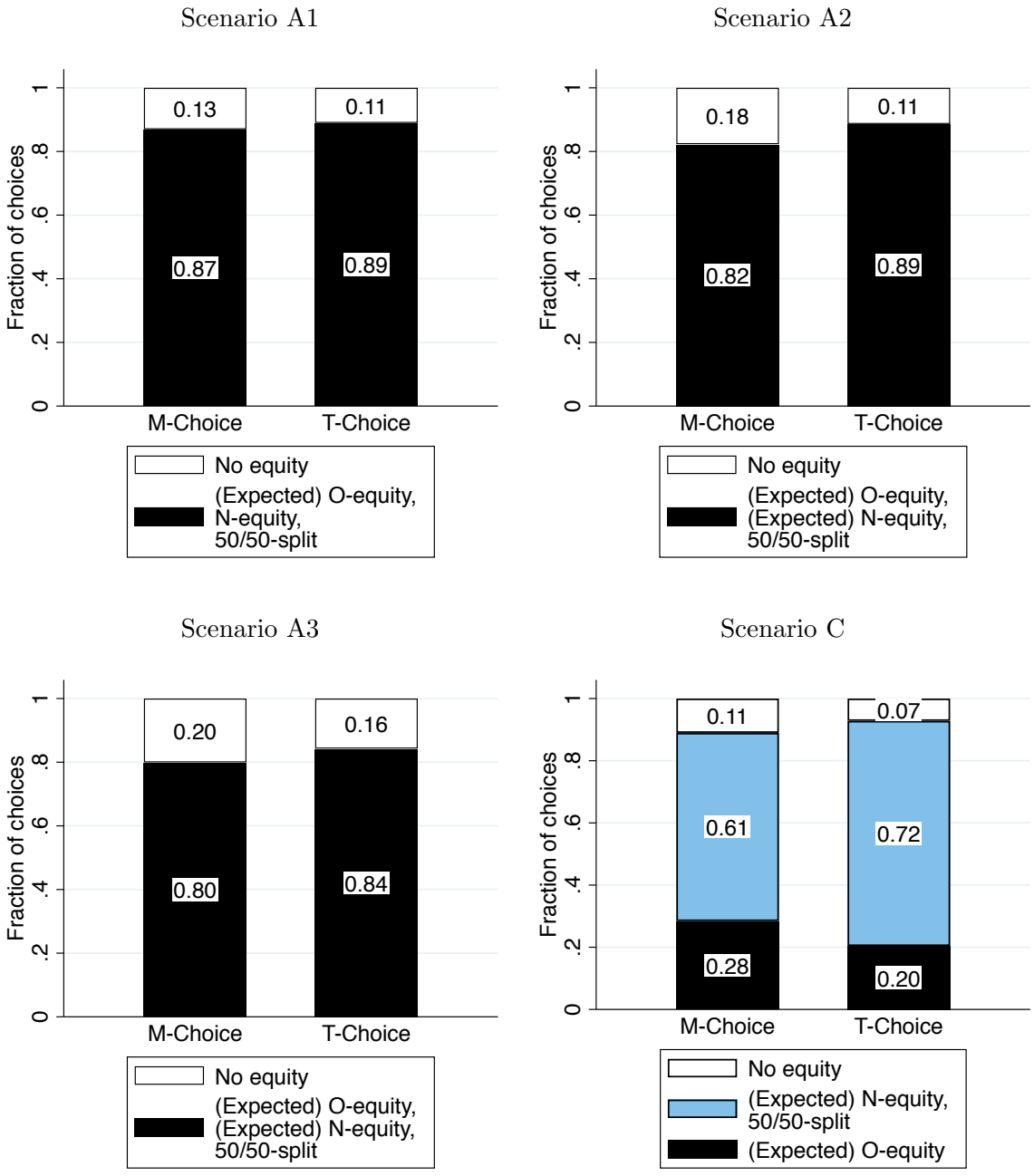
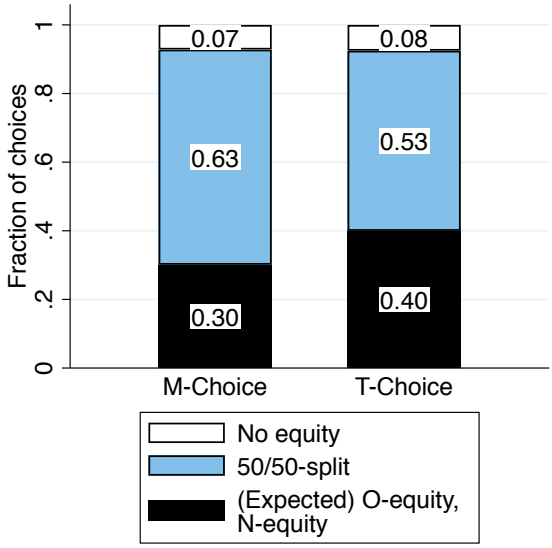
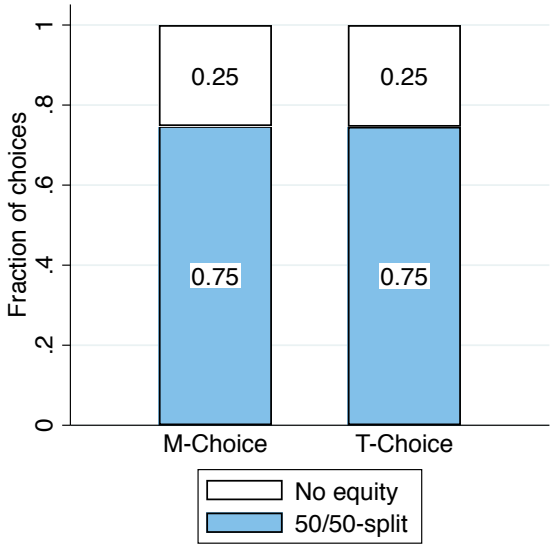


Figure B.13: *Money & Time, Uncertain Endowments* version: choices in additional scenarios

Scenario D



Panel E



Panel F

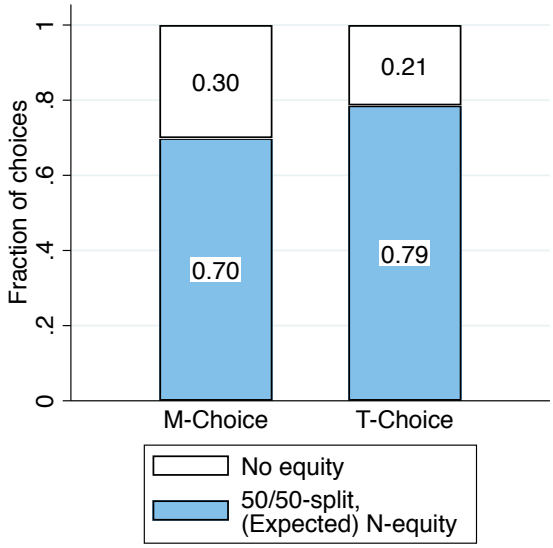


Table B.16: *Money & Time, Uncertain Endowments* version: regression results from linear probability models of forgoing (Expected) O-equity

	Allocation decisions about			
	money	time	money & time	
	(1)	(2)	(3)	(4)
(Expected) N-equity and 50/50-split $\not\Rightarrow$ *(Expected) O-equity*	0.55***	0.67***	0.61***	0.55***
	(0.03)	(0.03)	(0.02)	(0.03)
T-choice				-0.04***
				(0.02)
T-choice(\(Expected) N-equity and 50/50-split\)* $\not\Rightarrow$ *(Expected) O-equity)*				0.12***
				(0.03)
Constant	0.17***	0.13***	0.15***	0.17***
	(0.02)	(0.02)	(0.01)	(0.02)
Observations	1495	1495	2990	2990

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors are clustered at the subject-level and shown in parentheses. The results are from a linear probability model of forgoing O-equity. ***(Expected) N-equity and 50/50-split*** $\not\Rightarrow$ ***(Expected) O-equity*** is an indicator that the choice that achieves (Expected) N-equity and a 50/50-split does not achieve (Expected) O-equity. ***T-choice*** is an indicator for time decisions. Data are from the decisions of subjects—with accurately estimated exchange rates—in Scenarios A–C of the *Money & Time, Uncertain Endowments* version of our study.

Table B.17: *Money & Time, Uncertain Endowments* version: robustness regression results from linear probability models of forgoing (Expected) O-equity

	baseline sample with subject FEs		subjects with time costs that are			subjects with implied values calculated from		full sample regardless of normalized values
	not included	included	linear	concave	convex	inner-envelope	outer-envelope	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(Expected) N-equity and 50/50-split	0.55***	0.55***	0.54***	0.59***	0.52***	0.57***	0.53***	0.55***
$\not\Rightarrow$ *(Expected) O-equity*	(0.03)	(0.03)	(0.05)	(0.06)	(0.06)	(0.04)	(0.04)	(0.03)
T-choice	-0.04***	-0.04***	-0.05*	-0.02	-0.06**	-0.04**	-0.04*	-0.05***
	(0.02)	(0.02)	(0.02)	(0.03)	(0.02)	(0.02)	(0.02)	(0.01)
T-choice((Expected) N-equity and 50/50-split*	0.12***	0.12***	0.17***	0.05	0.12***	0.12***	0.13***	0.10***
$\not\Rightarrow$ *(Expected) O-equity)*	(0.03)	(0.03)	(0.05)	(0.06)	(0.04)	(0.04)	(0.04)	(0.02)
Constant	0.17***	0.38***	0.15***	0.16***	0.20***	0.16***	0.18***	0.19***
	(0.02)	(0.01)	(0.03)	(0.03)	(0.03)	(0.02)	(0.03)	(0.02)
Observations	2990	2990	1320	790	880	1550	1440	4000

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors are clustered at the subject-level and shown in parentheses. The results are from a linear probability model of forgoing O-equity. ***(Expected) N-equity and 50/50-split*** $\not\Rightarrow$ ***(Expected) O-equity*** is an indicator that the choice that achieves (Expected) N-equity and a 50/50-split does not achieve (Expected) O-equity. ***T-choice*** is an indicator for time decisions. Given our perfectly balanced sample and perfectly symmetric treatment variation within subjects, the inclusion of subject-level fixed effects is not meant to test whether the coefficient estimates change. Instead, we include these effects to test whether the statistical precision of our results persist. Data are from the decisions of subjects—with accurately estimated exchange rates (except in Column 8)—in Scenarios A–C of the *Money & Time, Uncertain Endowments* version of our study.

C Notes on the calibration procedure employed in the *Money & Time* versions

In this Appendix, we address potential concerns with our calibration procedure that determines the monetary value of participants doing 10 additional tasks (M_{10}) and doing 50 additional tasks (M_{50}). We use these values to make establish the exchange rate, namely the difference in money (i.e., $\Delta M = M_{50} - M_{10}$) that is equivalent $\Delta T = 50 - 10 = 40$ additional tasks. These values also allows us to set the value of the options in the money decisions equivalent to the value of the options in the time decisions.

In the time decisions, subjects must take away time by assigning the first and second participant: (1) 10 and 50 more tasks, respectively; (2) 30 more tasks each; or (3) 50 and 10 more tasks, respectively. In the money decisions, subjects choose between the first and second participant giving up: (1) M_{10} and M_{50} cents, respectively; (2) $\frac{M_{10}+M_{50}}{2}$ cents each; or (3) M_{50} and M_{10} cents, respectively.

Before addressing the potential concerns with this calibration procedure, we note that one motivation for running the *Tokens* versions of our study was to demonstrate clear evidence for narrow bracketing of equity concerns in a setting absent the need for any calibration procedure. We also note that an alternative approach—not calibrating units when comparing decisions across two domains—has severe limitations (e.g., it would not allow subjects to offset inequities in money and time to achieve O-equity).

C.1 Despite the calibration procedure, aggregating and trading-off money and time may be difficult

Aggregating and trading-off units of money to units of time may be difficult for a variety of reasons. If such trade-offs are difficult, this difficulty is likely to be an important (and to some extent unavoidable) feature of decisions involving money and time in everyday decisions. If anything, our study simplifies the aggregation and trade-off, since we only ask subjects to choose one of three options in each decision and our calibration procedure equalizes money and time differences, suggesting our results might be a lower-bound for the prevalence of narrow bracketing of these components.

C.2 The values implied by the calibration for some subjects are not usable

In the *Money & Time* versions of our study, 25% of subjects answered the M_{10} and M_{50} multiple price lists to indicate that the marginal cost of additional tasks was too small, namely $\underline{M_{50}} \leq \overline{M_{10}}$. In these cases, we randomly assigned subjects values of (M_{10}, M_{50}) from either (4, 52), (12, 92), or (24, 56). As seen in Column 8 of Appendix Tables B.10, B.12, B.14, and B.17, our results are robust to including subjects with randomly assigned calibration values.

C.3 The calibration procedure assumes linearity in the exchange rate between time and money

The M_{10} and M_{50} values from the calibration procedure are used to determine the three options in the money decisions. We assume a linear exchange rate between money and time, implying that each subject views the first participant doing 30 additional tasks as equivalent to the first participant giving up $\frac{M_{10}+M_{50}}{2}$ cents. We made this assumption so that the total amount of money that each pair of participants must give up is the same for all money allocations (i.e., it is always $M_{10} + M_{50}$ cents), which helps us to focus on equity rather than efficiency concerns.

Nonetheless, one might worry that if a subject's preference over time is not linear, we might fail to effectively normalize the money and time choices. In particular, we might be worried that subjects believe participants face convex costs of completing tasks, which might provide an efficiency rationale to equalize the number of tasks that the participants must complete. To address this potential concern, we can use our estimates from the M_{30} multiple price list, which asked about the monetary cost that the subject views as equivalent to doing 30 additional tasks. We test whether our results are robust to subjects whose multiple price list elicitations (i.e., M_{10}, M_{30}, and M_{50}) imply linear, concave, and convex costs of additional tasks. Columns 3 to 5 of Appendix Tables B.10, B.12, B.14, and B.17 confirm that our results are indeed robust to looking at subjects with linear, concave, and convex costs of the first participant completing additional tasks.

C.4 The calibration procedure implies a range of values, not a specific point value

As described in the main text, our calibration procedure aims to estimate M_{10} and M_{50}. Our multiple price list data establishes that $M_{10} \in [\underline{M_{10}}, \overline{M_{10}}]$ and $M_{50} \in [\underline{M_{50}}, \overline{M_{50}}]$. To show that our results are not sensitive to how we choose M_{10} and M_{50} from these ranges, we randomly assigned half of our subjects the smallest possible exchange rate (and thus the smallest possible $\Delta M = M_{50} - M_{10}$) allowed by their choices (i.e., we set $M_{10} = \overline{M_{10}}$ and $M_{50} = \underline{M_{50}}$). We randomly assigned the other half of our subjects the largest possible exchange rate (and thus the largest possible $\Delta M = M_{50} - M_{10}$) allowed by their choices (i.e., we set $M_{10} = \underline{M_{10}}$ and $M_{50} = \overline{M_{50}}$). Columns 6 and 7 of Appendix Tables B.10, B.12, B.14, and B.17 confirm that our results are robust to both types of calibrations including the smallest and largest exchange rates (and ΔM values).

C.5 The calibration procedure is only done for the first participant

We ask subjects to complete multiple price lists for the first participant, whose endowment does not change across decisions, rather than asking them to complete multiple price lists for the second participant as well. One advantage of running our study on MTurk, however, is that all participants face similar market wages on the MTurk platform; their opportunity costs of spending more time on our study (namely, not being able to spend that time completing a

different HIT on MTurk) are thus likely to be comparable. In addition, in the *Money & Time* and *Money & Time, Uncertain Endowments* versions of our study, there is no reason for subjects to hold different beliefs about the first and second participants since they are both anonymous MTurk workers.[43]

Finally, it is straightforward to show that our narrow bracketing of equity concerns results cannot be driven by subjects holding differential beliefs about how the first and second participant trade off money and time. While we can rationalize any of the three allocation choices for a decision without relying on narrow bracketing of equity concerns if we allow subjects to believe that the first and second participant have different exchange rates, the toy model in Section C.5.1 shows that such beliefs cannot simultaneously rationalize narrow bracketing of equity concerns when the first participant is advantaged and when the first participant is disadvantaged relative to the second participant.

C.5.1 Toy model

Here we show that allowing the first and second participant to have different money-time exchange rates cannot simultaneously rationalize narrow bracketing of equity concerns when the first participant is both advantaged and disadvantaged. We show this for one endowment set, but similar logic applies for other endowment sets as well.

Imagine subjects choosing a time choice in Scenario C of the *Money & Time* version of our study, when the participants both start with 60 tasks, but their monetary endowment differs (by $+\Delta M$ or $-\Delta M$). We assume linear exchange rates between money and time (denoted r_i for participant i, with $r_i > 0$) such that the total payoff of participant i is $P_i = cents_i - (r_i \times tasks_i)$ where $cents_i$ is the number of cents participant i has and $tasks_i$ is the number of tasks participant i has to complete. We show that if subjects' preferences are to minimize overall equity (i.e., $u = |P_1 - P_2|$), we cannot use different exchange rates (i.e., $r_1 \neq r_2$) to explain choosing N-equity when the endowment differs by $+\Delta M$ and when it differs by $-\Delta M$. To show this, we attempt to rationalize choosing N-equity rather than O-equity in both cases and look for a contradiction.

An endowment difference of $+\Delta M$ means initial endowments are $200 - 60r_1$ for participant 1 and $200 - \Delta M - 60r_2$ for participant 2. Choosing N-equity (30 more tasks to each participant) rather than O-equity (50 tasks for participant 1 and 10 tasks for participant 2) requires: $|\Delta M - 90r_1 + 90r_2| \leq |\Delta M - 110r_1 + 70r_2|$. By the normalization, $\Delta M = 40r_1 \implies |90(r_2 - r_1) + 40r_1| \leq |70(r_2 - r_1)|$. Since $r_1 > 0$, this requires $r_2 < r_1$.

[43] Such a concern might be more relevant in the the *Money & Time, First Person* version of our study, where subjects are asked calibration values for themselves and could theoretically hold systematically different preferences about the value of time for the other participant. Indeed, participants may be motivated to hold different beliefs about the value of time for the other participant to justify allocations that benefit themselves. Contrary to viewing such a possibility as a concern, however, we view it as a factor that contributes to the the *Money & Time, First Person* version being both a demanding and interesting test of our findings.

An endowment difference of $-\Delta M$ means initial endowments are $200 - 60r_1$ for participant 1 and $200 + \Delta M - 60r_2$ for participant 2. Choosing N-equity (30 more tasks to each participant) rather than O-equity (10 tasks for participant 1 and 50 tasks for participant 2) requires: $|-\Delta M - 90r_1 + 90r_2| \leq |-\Delta M - 70r_1 + 110r_2|$. By the normalization, $\Delta M = 40r_1$ $\implies$ $|90(r_2 - r_1) - 40r_1| \leq |90(r_2 - r_1) + 20(r_2 - r_1)|$. Since $r_2 < r_1$ (as required above) and $r_1 > 0$, both absolute values contain negative numbers. Consequently, we need $-40r_1$ to be less negative than $20(r_2 - r_1)$, but $-40r_1 \geq 20(r_2 - r_1)$ $\implies$ $-20r_1 \geq 20r_2$ $\implies$ $-r_1 \geq r_2$, which is a contradiction since both r_1 and r_2 are positive.