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ABSTRACT

Luck or Rights? An Experiment on Preferences for Redistribution Following Inheritance of Opportunity*

We experimentally investigate whether people generally perceive inheritance as effort-induced or luck-induced. By randomly matched two strangers in a lab setting, we test whether the sources of opportunity handed down from the 'testator' subjects determines later redistributive decisions among the 'heir' subjects. On average, redistribution is highest among the heirs whose chance of winning is determined by the pure luck of the paired testator. In contrast, our subjects treat inherited opportunity generated by effort of someone else who they are artificially linked with as relatively fair. Our results suggest that people would feel entitled to bequests and inheritance unless the randomness of inheritance has been made salient to them.

JEL Classification: D64, H2

Keywords: inheritance, fairness, redistribution, experiment, inequality of opportunity

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1. Introduction

Previous studies on fairness suggest people judge inequality as more acceptable if it was, or at least perceived to be, the outcome of effort and not luck (e.g., Piketty 1998, Rawls 1971, Anderson 1999, Konow 2000, Erkal 2011). One reason for this is that people generally have preferences for meritocratic fairness, thus making them more willing to redistribute income from pure luck rather than income earned through effort (e.g., Cappelen et al. 2007, Krawczyk 2010, Mollerstrom et al. 2015, Lefgren et al., 2016, Almås et al., 2019).[1] It also explains why there is a significant variation in the support for redistributive policies in countries where there are normative differences in the beliefs about luck and effort in determining people's economic status. For example, one reason Americans are generally more accepting of inequality than the Europeans is that most Americans believe that bad choices or laziness cause poverty and that hard work is the only key to success, i.e., the 'American dreams.' In contrast, most Europeans believe that luck plays a much more significant role in determining income distribution in their society (see for instance, Alesina et al. 2001, 2004, Powdthavee et al. 2017, Almås et al. 2020).[2]

Based on a meritocratic fairness view, the intergenerational transmission of economic opportunity and status, which is essentially an outcome of a random assignment at birth, should be considered as an unfair process, and consequently, they are more in favour of more generous redistributive policies ((Bowles and Gintis 2002, Alesina, Stantcheva and Teso 2018). Following the same reasoning, people with this fairness view should be more willing to redistribute inherited wealth and economic opportunity than they would with anything they have earned through hard work and effort. However, there is little empirical evidence to suggest that people feel less entitled to their wealth and economic opportunity which they inherit from another person. This is reflected in the declining taxation of inheritance and gifts in many countries - even among the most meritocratic countries, such as Denmark and Finland, over recent years (Tax Foundation 2015). The growing unpopularity of inheritance tax suggests that people generally perceive the handing down of wealth and opportunity as more acceptable than unfair, which is the opposite of what the meritocratic fairness view predicts. Such an apparent

[1] Liberal egalitarianism views and justifies unequal distribution of success or failure according to the extent to which individuals can exercise their control over the situation. Cappelen *et al.* (2007), Fong (2001), and Alesina and La Ferrara (2005) show that people perceive the process of distribution as fair when the factors determining such outcomes arise from individual control, for instance skill, talent and effort. Cappelen *et al.* (2013) investigate the role of ex-ante risk and ex-post risk on redistribution considerations in dictator games.

[2] Fairness considerations are also used to explain the positive correlation between a country's level of social welfare spending and the average belief that luck determines income among their citizens (Alesina and Angeletos 2005). The difference in sources of earnings (luck versus merit) can explain the delayed satisfaction that individuals derived from a positive shock in their unearned incomes (Winkelmann *et al*. 2011, Apouey and Clark 2015). See Cappalen *et al*. (2020) for an extensive review of the recent literature.

divide between what the theory predicts and what we infer from anecdotal evidence is scientifically unappealing.

It is also not straightforward to empirically test whether meritocratic fairness views hold when it comes to distributive decisions on bequests and inheritance. Administrative data on bequests and inheritance are often not easily accessible, and even when they are, we cannot explicitly test whether redistributive decisions of inheritance are driven by how inheritance is generated – particularly by luck or by efforts.[3] Hence, it seems desirable to experimentally investigate in the lab whether people generally perceive *inheritance of opportunity* (a likelihood of being a *winner* in a given situation) as unfair and subsequently would be more willing to redistribute their reward afterward. Another advantage of a lab setting is that it is possible to make clear to the subjects on the sources of their inherited opportunity, and observe their distributive decisions with real-stake payoffs.

In this paper, we conducted a series of experiments at two Asian locations (Singapore and Thailand) where participants were randomized into conditions where their initial *opportunity* endowment (that is a chance to become a dictator in a modified stakeholder dictator game) was determined in four variations: (i) own effort, (ii) own luck, (iii) passively inheriting the opportunity endowment of a testator who had put in effort, or (iv) passively inheriting the opportunity endowment of a testator who had obtained it by sheer luck. To simulate a relationship between a *testator* and an *heir* of our lab participants, we induced an artificially filial relationship between the paired participants across two different experiment sessions before the redistribution stage in the inheritance setting - variations (iii) and (iv). Particularly in the inheritance setting, each testator handed down their opportunity endowment passively to the randomly matched heir. In this case, all heirs obtain their opportunity endowment by random chance. However, as we also opened up a channel for our testator participants to passively communicate with their heir (via leaving their messages on screen as well as on paper), it is likely that it may trigger a degree of relationship of the heirs with their testator, and subsequently a sense of entitlement to the endowment opportunity that they in fact randomly acquired.

On average, we find evidence that participants who were explicitly told that their chances of winning in the dictator game are inherited from their testator's luck redistributed significantly more of their winning reward than the participants who were told that their

[3] A recent insight from online survey experiments by Kuziemko *et al.* (2015) show that the support for estate tax increases when people are informed that they are unlikely to be affected by the policy.

chances of winning were determined by own effort (the testator participants in the effort design). However, there is little evidence that people redistributed substantially more of their winning when they knew that their opportunity was determined either by their luck or by the inheritance from their testator's effort. Our results highlight the importance of context, or narrative framing regarding the nature of inheritance, and its effect on people's willingness to redistribute.

This paper is outlined as follows. Section 2 briefly discusses the background literature, while section 3 describes the experimental design and procedures. The empirical strategy is outlined in Section 4. Section 5 discusses the results, and Section 6 concludes.

2. Background

There is a long-standing finding in economics that people generally treat earned income and windfall differently. One of the early works in this area was a laboratory experiment conducted by Konow (2000) who documents evidence of people treating inequality that arises from individual differences in achievement as fair. In a related study, Cappelen et al. (2007) show that when all determining factors are identifiable - as either within or beyond individual control, the subjects in their experiment decide to hold individuals responsible only for outcomes produced by factors within their control. In an experiment where subjects were assigned different distributions of probability of winning in a task that precedes a redistribution decision, the average transfers made by the selected dictator of the game were 20 percentage points more in the treatments in which opportunity of winning was determined by luck rather than by effort (Krawczyk 2010). Similar observations that support the fairness-inequality acceptance hypothesis have also been obtained across different experimental setups, including Erkal et al. (2011), Becker (2013), Mollerstrom et al. (2015), Lefgren et al. (2016). These studies' findings point to the vital role of procedural fairness in influencing people's attitudes towards income redistribution.

A common feature of previous studies in this area is the high salience of effort versus luck in the production stage (Gee et al. 2017, Lefgren et al. 2016, Cappelen et al., 2013). Participants could typically tell straight away whether effort or luck generated their endowment, income, or chances of winning. However, we know very little from previous research on how people perceive the nature of inheritance. From the perspectives of bystanders and heirs themselves, do they feel that the handing down of income and economic opportunity is unfair *even if the stakes are small*? Or might they think the inheritance of economic status, and the intergenerational persistence of inequality that comes with it, is justified and well-deserved?

Recent empirical evidence from general surveys on inheritance tax suggests that most people feel more entitled to their inherited economic status than would have been predicted by the fairness hypothesis. For example, many studies have shown that inheritance and gift taxes are among the least popular of all taxes among the general public.[4] From a survey experiment with vignettes of multiple factors and no real stake, Gross et al. (2017) find their subjects to be less receptive of inheritance tax, the closer is the familial relationship between the testator and the heir.

What explains why people feel more rather than less entitled to their inheritance when inheritance is an outcome of luck instead of effort? One possible explanation is that people might justify the inheritance of wealth or of economic opportunity as a kin investment necessary to pass down their parents' genes (Smith et al. 1987). It is also possible that people see inheritance as something they had earned through hard work and effort, even though a large part of their successes results from having won in the genetic lottery (Hauskeller 2016).

One hypothesis is that people are often unaware of the importance of luck in the intergenerational transmission of economic success. By randomly raising people's awareness about the importance of inheritance tax in a Swedish survey, Bastani and Waldenstrom (2021) were able to alter people's views on whether luck matters most for economic success and, consequently, increased the average support of the inheritance tax among the treated group compared to the control group who did not receive the same information. Their results suggest that the low salience of the process with which inherited wealth is generated might be one of the underlying reasons why inheritance taxation is growing out of favor with residents in developed countries.

Despite the growing interest in the topic, the economic literature in this area remains small - leaving the relationship between inheritance and fairness to continue to be imperfectly understood. In addition, to the best of our knowledge, studies which attempt to address this question with real-stake decisions remain scarce. Our empirical design presented here seeks to provide further insights to whether making the randomness of inheritance more salient would decrease the heir's feeling of entitlement of the inherited economic opportunity, and therefore

[4] In a 2002 survey of 1,346 randomly selected U.S. respondents on what people thought about repealing the estate tax in the U.S., almost 70% favored abolishing the estate tax (Bartels, 2006). Prabhakar (2012) found that one of the most unpopular taxes among the older population in England is inheritance tax, while over 60% of German citizens in a nationally representative survey stated that inherited wealth beyond a specific amount should not be taxed at all (Bischoff and Kusa, 2019).

causes them to redistribute more of their final reward. Through a series of lab experiments with small, but real monetary stake outlined in the next section, we test this hypothesis and other implications of how the inheritance was generated on people's subsequent redistributive behavior.

3. Experimental design

To empirically test the fairness-inequality acceptance hypothesis in the context of inheritance, we conducted a laboratory experiment with a modified dictator game in a group setting that consisted of a production stage and a distribution stage. The experiment was computerized using z-tree (Fischbacher 2007).

We first asked each participant to respond to a hypothetical question about their preferences of a winner's redistribution in the dictator game with four members in each group. Participants were aware that they would engage in an environment resembling a lottery contest with different chances of winning the contest. The question specifically asked them how much they would transfer as winners to non-winners before knowing whether they win. This initial *thin veil of ignorance* (VoI) stage is intended to elicit each participant's stated inequality aversion in a Rawlsian context. VoI captures their *ex-ante* inequality preference, which is unconditional on their winning status and on the sources of earnings that we would introduce next in the game. The measure is different from the *ex-post* revealed preferences towards inequality that we will next elicit in the next step of the game where the decisions are binding.

Next, each participant was then assigned a chance of winning (*CW* hereafter), during the production stage (explained below). This CW gives certain members a better chance of being selected as a winner in the game, but it does not guarantee the eventual winning. We fixed each member's CW throughout the experiment. In order to generate different within-group dispersion of CW, we followed Krawczyk's (2010) experimental design and allowed four CWs (0.2, 0.4, 0.6, and 0.8). An equal number of subjects were assigned to each level of CW.[5] The matching algorithm was conditionally randomized so that the sum of CW of a matched group equals two.[6]

[5] Being endowed with 0.2 is simply perceived a relative low chance of winning whereas the endowment of 0.8 is suggestive of a high chance of success when subjects would *compete* among their group's members to win the reward.

[6] This generated three different groups of CW distributions that ranged from more to fewer equal groups but with the same mean (0.5), i.e., (0.4,0.4,0.6,0.6), (0.2,0.4,0.6,0.8), and (0.2,0.2,0.8,0.8). In practice, we elaborated in the instruction that the sum of CW (2) was equivalent to the total of virtue lucky balls (20) in a bag. For instance, a subject with a CW of 0.2 would be equivalent to having two lucky balls of hers in that bag, and we communicated explicitly in the instruction that this implies that the chance of winning for this particular subject is 10%.

After the computer randomly selected a winner in the group based on each individual's CW, we asked the winner to distribute a fixed endowment of 100 experimental tokens (E.T.) between herself and the rest. Simultaneously, we also asked the non-winners in each round to state how much they would have liked the winner's transfer to them. There were ten rounds, and in each round, groups were re-matched so that subjects were put in a strictly new group during the session. In each round, a new winner was chosen to make the distribution decision. The winner's redistributive choice would determine the actual payment to each group member. In the final round, we additionally elicited non-winners' satisfaction with the actual transferred amount as we revealed the redistribution outcomes at the end.

All participants played the same modified dictator game, with the only difference is how each member's CW in the production stage is determined. Specifically, we randomized participants into one of the four treatment groups:

1. Testator/Effort (T/E)
2. Testator/Luck (T/L)
3. Heir/Effort (H/E)
4. Heir/Luck (H/L)

In the T/E treatment, we asked participants to play the 'slider task' developed by Gill and Prowse (2012).[7] The task was also a computer-based game on *z-Tree*. Here, participants had to put the cursor to the designated position on a screen as many times as possible in 10 minutes. They were made aware from the beginning that the results of their performance in the Slider game in the T/E treatment would result in their eventual CW. We applied the same rules to all participants in the same session[8]. Afterward, we informed the participants that their relative performance – compared to other subjects in the same session – would directly determine their chance of being a winner once the experiment continued to the next stages. That is the bottom 25% was assigned CW = 0.2, and the subsequent quartiles were assigned CW = 0.4, 0.6 and 0.8 respectively.

[7] The Slider Game is preferred here as it is shown to highly reflect effort and less of other unobservable cognitive abilities or traits of the players (Gill and Prowse 2011, 2016).

[8] Almås et al. (2010) also allowed to slack, i.e., participants can move between the production game screen and the video screen during the 45 minutes. In Cappelen (2007) subjects were exogenously assigned different rate of returns and subsequently had to decide on an investment choice. In Krawczyk (2010), to generate the skill-success dimension, participants took a quiz (of general knowledge or IQ-style) to obtain a ranked score.

On the other hand, participants in the T/L treatment were randomly assigned their CW via a computer program. The experimental design in the T/E and T/L treatments allows us to test the fairness-inequality acceptance hypothesis *intra*-generationally as have been done in the literature. It should be noted that a subject may still not win eventually even though she (he) manages to get high performance and thus a high CW. The opposite may also be true. That is a subject with low performance, and therefore a low CW may end up winning.

To examine the role of inheritance on redistributive behavior, we designed the H/E and H/L treatments to simulate the essential characteristic of inheritance: the intergenerational transmission of economic opportunity in the production stage. We matched each *heir* participant in the H/E treatment with a random testator participant in the T/E treatment. We also did the same for the heirs in the H/L treatment by matching them with a random testator in the T/L treatment. This process enabled us to construct an environment where each participant's CW in the H/E and H/L was determined by pure luck. The only difference between the heir treatments is that the randomly inherited CW had been given to them by their testator who previously acquired the CW by chance (T/L), or by effort (T/L).

One limitation of our experimental design is that participants from the testator and heir treatments were genetically unrelated strangers rather than members of the same family. Nevertheless, to induce their artificially filial attachment, we also implemented two further steps in making the filial relationship more salient. In details, we asked participants in the T/L and T/E to leave participants in the H/L and T/E two sets of notes: (i) a predetermined comment/encouragement note on *z-Tree*, and (ii) a written personalized message on a piece of paper.[9] The paired-up participants in the H/L and H/E treatments would then receive the notes at the start of the production stage. In effect, we ran the H/L and H/E treatments immediately after the T/L and T/E treatments. If the design is able to generate a sufficiently strong sense of connection, we expect to better observe the role of entitlement in redistributive decisions of our heir participants.

There were 10 rounds per experimental session, with 16 sessions in total. At the end of each experiment session, a computer drew a number at random to determine the round from which the distribution decision would be used to calculate the final payment. A winner earned (100 – *transfer*) experimental tokens, while each non-winner earned (*transfer*/3) experimental

[9] Around 60 percent of the personalised messages included words of encouragement e.g. "You can do it"; "Do your best"; "Have fun", around 50 percent contained some guidance of how to best play the game, for example, "Be nice"; "Read the instruction carefully"; "I apologise that we have only a small chance to win". Overall, more than half of the messages expressed a positive sentiment from the senders whilst the other half was written in a neutral tone.

tokens. In each round, participants knew whether she was a winner or not. The amount redistributed was known only to the winners but was not revealed to the non-winners in rounds 1 to 9. However, at the end of round 10, the round's redistributive outcome was revealed to all players. The purpose of the modification in the final round is to subsequently elicit the satisfaction of the non-winners given the amount of redistribution received. The total earnings from the experiment were the experiment payment plus a show-up fee.

We ran the experiment in two locations: (i) at the Center for Behavioral and Experimental Economics (CBEE) laboratory at Chulalongkorn University (Bangkok, Thailand) in February and March 2018 with 400 subjects and (ii) at the Experimental Laboratory at Nanyang Technical University (Singapore) in October 2018 with 176 subjects. At both locations, subjects were recruited from each laboratory's subject pool.[10] Thus, we have 576 subjects who participated in our experiments conducted in Bangkok and Singapore.

The testator treatments oversampled subjects from upper-year undergraduates (Years 3 and 4) while the heir treatments over-sampled subjects from lower-years (Years 1 or 2). We did this to induce a more salient relationship structure between the testator (older) and the heir (younger) in a matched pair. Note that 62% were female in the Thai sample, 48.1% were studying economics or having business majors, and the average age was 22.4 years old. There were also more female than male participants (58%) in the Singaporean sample, with a marginally higher fraction of students from economic or business majors than other fields (38.1%). (See panel A of Table A.1) On average, participants were rewarded around 275 THB (Bangkok, equivalent of 8 USD) and 13.5 SGD (Singapore, equivalent of 9.6 USD), including a fixed show-up fee for their participation in a session that lasted 60 minutes.

4. Empirical strategy

Our principal analysis involves modeling the winner's decision to redistribute his or her winning to the rest of the group as a function of experimental conditions and personal characteristics. Since we are interested in estimating separately the effects of 'luck' and

[10] CBEE used its Facebook page to advertise the initial enrolment into the general subject pool, while NTU used a recruitment email sent to NTU students to advertise the experiment to potential participants. For this particular experiment, the recruitment email for both sites advertised for subjects to play a game titled 'Finding Numbers'. Subjects at Bangkok (Singapore) site were told to expect to receive approximate 150 THB (13.49 SGD), and could earn up to 450 THB (36 SGD) inclusive of the show-up fee (equivalent of 5 to 14 USD).

'inheritance' on winner's redistribution, we estimate the following regression equation on the sample of winners:

$$(1) \qquad R_{i,n} = \beta_0 + \beta_1 L_i + \beta_2 H_i + \beta_3 (L_i\, H_i) + \gamma CW_i + \rho INEQ_{i,n} + \pi VOI_i + X_i'\tau + \varepsilon_{i,n}$$

where $R_{i,n}$ denotes the amount (0-100) allocated by the winner, *i*, to the rest of the group in round *n*; L_i is an indicator variable that takes a value of 1 if the participant was randomly assigned to one of the luck treatments (T/L and H/L) and 0 otherwise (T/E and H/E); H_i takes the value of 1 if the participant was randomly assigned to one of the heir treatments (H/E and H/L) and 0 otherwise (T/E and T/L); CW_i is the assigned chance of winning; and $INEQ_{i,n}$ is a measure of within-group inequality of CW_i in round *t*; VOI_i represents an ex-ante preference for redistribution; X_i' is a vector of personal characteristics that include age, gender, a dummy for whether or not the individual studied economics or business, the location of the experiment lab (Bangkok or Singapore), and the order of the experimental round; and $\varepsilon_{i,n}$ is the error term.

In this fully interacted regression model, the baseline for comparison is the T/E treatment. The coefficient β_1 denotes the main effect of having been assigned to a luck treatment regardless of the generation; β_2 is the main effect of having been assigned to an heir treatment regardless of the assignment to either luck or effort treatment; and β_3 represents the interaction effect of having been assigned to both luck and heir treatments. A linear combination of all three coefficients ($\beta_1 + \beta_2 + \beta_3$) produces the implied total effect of having been assigned to the H/L treatment on redistribution.[11] Based on the meritocracy fairness ideal, we expect participants in both luck and heir treatments to feel less entitled of their rewards than those in the testator/effort treatment, thus leading them to transfer significantly more of their winnings to non-winners in their groups.

In addition, non-winners in either the luck or the heir treatment should expect winners to redistribute substantially more of their winnings to the rest of the group, on average. To answer this, we also elicited the non-binding demand for redistribution stated by all non-winners in each round to test this hypothesis. In detail, after the winning status was revealed, non-winners were asked to state how much (out of 100) they would want from the winner to redistribute. We exploited the elicited information from the non-winner side and estimated the following regression equation on the sample of non-winners:

[11] In other words, the coefficients β_0, $\beta_0 + \beta_1$ and $\beta_0 + \beta_2$ are the estimated effects of the T/E, T/L and H/E treatments, respectively.

(2) $$ER_{i,n} = \theta_0 + \theta_1 L_i + \theta_2 H_i + \theta_3 (L_i\, H_i) + \cdots + v_{i,n}$$

where ER_{it} represents non-winners' expected redistribution from the winner in round n. The interpretation of θ_1, θ_2, and θ_3 is analogous to the associated coefficients in Equation (1), under the common set of control variables. We hypothesize that if non-winners associate luck or inheritance with less entitlement, θ_1, θ_2, and θ_3 are positive and statistically significantly different from zero, which implies a higher demand for more redistribution among non-winners in the luck and the heir treatments.

We estimated Equations (1) and (2) using a two-limit Tobit specification for the intensive margin analysis as our outcome variable is censored on both ends (at 0 and 100). Because of the multiple round design, we cluster the standard errors at the subject level. While our data structure resembles a panel data, it is not a balanced panel because we were more likely to observe players with higher CW than those with lower CW in the winner sample. On the other hand, the non-winner sample contained more players at the lower ends of the CW.

5. Results

To what extent is an average winner's redistribution a function of luck, effort, and inheritance? Figure 1.A. makes the first pass at this question by presenting raw data averages of winners' transfer by treatment. Here, we can see that the average winner's redistribution is the lowest for participants in the T/E group; out of the possible 100, the average winner's transfer for this group is 20.6. The average winner's transfer is roughly the same for participants in the T/L (*mean* is 23.4) and H/E (*mean* is 23.5) groups, while the average winner's transfer is highest for participants in the H/L (*mean* is 27.9) group. Although we cannot reject the null hypothesis that the raw average winner's redistributions are the same across T/E, T/L, and H/E groups, we can nevertheless reject the null of equal means between H/L and the other three groups. For example, a Wilcoxon signed-rank test of winner's redistribution between the T/E and H/L produces $z = 8.08$, $p = 0.000$ (two-tailed). The same test between the H/E and H/L produces $z=4.47, p=0.000$ (two-tailed). These figures provide some preliminary evidence that people treat winnings generated by a luck-induced inheritance of opportunity differently from winnings that had been generated by some other means.

Table 1 introduces econometric evidence. The dependent variable is the winner's transfer following a win (from 0 to 100). Standard controls, as stated in Eq. (1) are entered into the

Tobit equation. We start with the most parsimonious specification in Column 1 and end with the full specification in Column 5. Looking across Columns 1-4, we can see that the 'second-generation' (or the inheritance) coefficient is positive albeit statistically insignificantly different from zero in all specifications. By contrast, the 'luck' treatment coefficient is both positive and statistically significant at conventional levels. Conditioning on the inheritance treatment, winners in the luck treatment redistribute approximately 3 points (*S.E.*=1.36) of their winnings more than those in the effort treatment, on average.

We then estimated the full interacted model and reported the results in Column 5 of Table 1. Here, we can see that luck's main effect is positive though statistically insignificantly different from zero; the coefficient on the luck treatment is now 1.89 with a standard error of 1.95, in line with the luck-effort hypothesis. The coefficient on the interaction term is also positive, albeit statistically insignificant at 2.09 (*S.E.=2.72*). These results suggest that while participants in the H/L redistributed more of their winnings than those in the T/L and H/E treatments, the differences are not statistically significant at conventional levels. Nevertheless, given the implied effect, i.e., $\beta_1 + \beta_2 + \beta_3$, is positive and statistically significant at the 1% level (*S.E.=1.94*), we have some evidence that participants in the H/L treatment redistributed substantially more than those in the T/E treatment.

Table 1's other results show that participants who have reported preferences for redistribution in the Veil of Ignorance stage (VoI) redistributed more of their winning, on average. The information of winning status was known to our subject, and in our regressions shown in columns (4) and (5), we included a control variable showing whether the current winner had won in the previous round. We find that having won previously made the person more generous. This result is different from Cassar and Klein's (2019) finding where individuals who previously experience losing redistributed significantly more. Holding other things constant, there is little evidence of gender differences in redistribution following a win. We also find insignificant differences in redistribution rate across individuals with different CWs, and dispersion of CWs within the group (Krawczyk 2010). Economic students and Singaporean participants redistributed less of their winning, on average.

One hypothesis is that non-winners in either the luck or inheritance treatment feel more entitled to other people's winning if the win was determined purely by luck and not effort. Figure 1 panel B show the unconditional means of non-winners' preferred transfer across all four treatments (T/E, T/L, H/E, and H/L). Going across all columns, they are statistically the same. Table 2 investigates whether there are substantial differences in how much transfer is expected by non-winners across luck and inheritance treatments in detail using the specification in Eq. (2). Non-winners in the inheritance treatment demanded 1.35 (*S.E.=1.67*) more, although the difference is statistically insignificantly different from zero.

Similarly, we find that those in the luck treatment demand 0.76 (*S.E.=1.61*) more redistribution from the winner. Overall, the linear combination of the implied effect of the H/L treatment is sizable (4.84), albeit statistically insignificant at conventional levels. A higher VoI drives higher demand for redistribution. Economic students and subjects from Singapore demanded less from the winners – suggesting that they perceive that winners deserve to keep what they had 'earned.' In sum, Table 2's main results suggest that there is little treatment difference in non-winners' perceived entitlement to the winner's prize.

Assuming that fairness preferences are important determinants of the redistributive decision (Rawls 1971, Almas et al. 2019), Table 3 explores whether the results of winner's redistribution across luck and inheritance treatments vary significantly across people with ex-ante fairness preferences (VoI). On average, winners across all four treatments shared a common value of VoI (at approximately 40 out of 100 tokens). On the other hand, the scatter plot in Figure 2 panel A demonstrates that the winner's actual transfers positively correlate with the stated VoI. Note also that the ex-post transfers rarely exceeded the ex-ante stated values (with most observations appear in the area to the right of the 45-degree line). We classify our subjects as high VoI if their fairness preference is at least at the sample median or above and low VoI otherwise. In columns 1 and 2, we repeat the specification in Equation (1). The main effect of luck is positive but insignificantly different from zero; the low VoI sub-sample coefficient is much larger than that of the high VoI sub-sample. In contrast, the effects of inheritance and the luck × inheritance interaction among those with high VoI are 4 times larger than the low VoI winners, and the differences are statistically significant. We also find that the amount transferred by winners increased with the stated amount of the VoI transfer. Nevertheless, we know from our previous result shown in Table 1 that the amount transferred after knowing they win would still be less than the amount they wished to transfer ex-ante.

Analogous to Table 1, the implied effect (a linear combination of $\beta_1 + \beta_2 + \beta_3$) of the H/L treatment is positive at 6.47 and 3.78 for the high and low VoI winners. Similarly, the difference between T/E and H/E, implied by the linear combination of $\beta_1 + \beta_3$ is large and significant only for the high VoI winners at 6.13 (*S.E.=3.58*). We interpret the difference here as an inheritance premium within the luck treatment, and we do not observe such a premium within the effort treatment.

The regressions results presented in Columns 3 and 4 in Table 3 focus on the heterogeneous effect of luck and inheritance treatment on the non-winners' demand for redistribution. While we do not observe significant effects from each separate treatment coefficient, the implied effect of being non-winners under the S.E. treatment is large and significant (11.32) for the high VoI non-winners. In contrast, the implied effect is small and insignificantly different from zero among the low VoI non-winners. Moreover, the complementary effect of fairness preferences and the entitlement of non-winners is stronger among individuals who are highly averse to unfairness.

Finally, digging deeper into the limited role of the perception of entitlement on the non-winners' demand for redistribution, Table 4 estimates with linear regressions of the treatment effects on satisfaction with the final transfer reported by non-winners in the final round (standardized with mean 0 and standard deviation 1). We interpret positive and statistically significant values of $\theta_1, \theta_2,$ and θ_3 as an indicator of non-winners' empathy towards the winner's entitlement of the reward. Columns 1 and 2 estimate the full sample of non-winners in round 10. The sole effect of luck treatment is 0.23 (*S.E.=1.08*) in the baseline specification without the luck-inheritance interaction. In the full specification (column 2), all $\theta_1, \theta_2,$ and θ_3 have positive signs but without statistical significance, whereas the interaction term almost absorbs the effect of sole luck. Overall, the implied effect of H/L on non-winners' satisfaction is around 0.3 sd. larger than the one in other treatments.

The sub-sample analysis between non-winners with low and high fairness preferences reveals that the effect of H/L on satisfaction with the amount transferred is much larger in magnitude (at 0.65 sd.) and strongly different from zero (column 4). Among the high VoI winners, the differences of stated satisfaction between H/L and H/E and between H/L and T/L are 0.42 (*S.E.=0.18*) and 0.52 sd. (*S.E.= 1.19*), respectively. In contrast, there is no difference across treatments regarding satisfaction among non-winners with low fairness preferences (column 4). Overall, the results in Tables 3 and 4 reject our prior hypothesis that non-winners in luck and inheritance treatments - particularly individuals with strong inequality aversion - would be less empathetic towards the winner's reward and henceforth would have demanded higher transfers and feel less satisfied with the outcome than other treatments.

Interestingly, in all regression results presented in Table 4, none of the CW variables are statistically significant. In particular, those who have high CW but end up not winning did not seem to feel less satisfied with the final transfer from the winners than those who have low CW. They might be expecting to win given their high CW, and in such a circumstance, disappointment would usually lead to dissatisfaction and bitter feeling towards the winners.

However, this is not the case. It could be because they were aware that having a high CW due to their effort, luck, or inheritance does not guarantee to win, so they perceive these various methods of generating the CW as virtually beyond their control. Hence, there was no reason to be upset for something that is determined by luck could be the explanation for the insignificant of the CW variables.

In summary, our findings point that the inheritance of opportunity is generally viewed, in our case by student subjects making real, but low stake decisions, as effort-induced unless it is explicitly made clear that the inheritance was driven purely by luck and not effort. This is consistent with a recent finding in Bastani and Waldenstrom (2021) who study the attitude towards inheritance taxation among a representative adult population in a no-stake vignette-style survey.

6. Conclusions

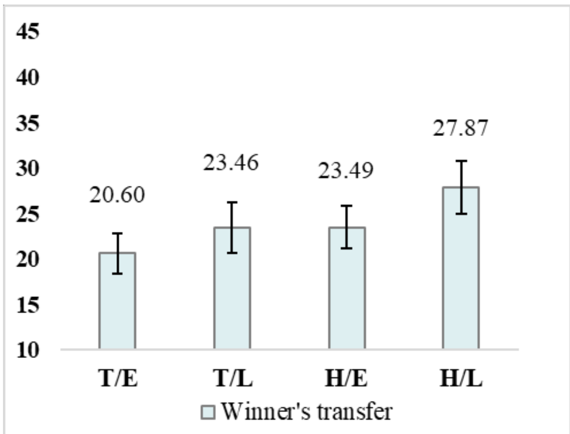
This paper experimentally investigates whether the transmission of economic opportunity from one stranger to another is viewed more as luck or effort. We find evidence that, on average, redistribution was highest among the *heir* participants whose chance of winning was determined purely by luck in the first generation. For the heir participants whose chance of winning was determined purely by effort of their testators, their redistributive decisions are statistically the same as those under a straightforward effort treatment. In contrast, there is little evidence that non-winners hold significantly different perceptions regarding the winner's entitlement to their winning across treatments. Nevertheless, non-winners in luck and inheritance are more satisfied with the final redistribution than others, perhaps because the average transfer is notably higher in these groups.

Previous studies have found that personal experiences shape people's perception of how inequality in their society is originated. The current study contributes to this research area by showing the salience of how bequests and inheritance were generated plays a crucial role in explaining the heterogeneous support for redistributive initiatives. In this paper, we have presented another scenario where it is much less clear whether luck and effort were the source of unequal opportunity. As people have their way of rationalizing a classic question of whether a birth lottery is an acceptable unfairness, they also have their own beliefs when judging the fairness of inheritance. Our finding contributes to this debate by providing experimental evidence showing that explicitly communicating the information of sources of inheritance is critical in inducing the winners to redistribute, particularly under a scenario of limited information (Rabin 1998, Cappelen, Falch and Tungodden 2020).

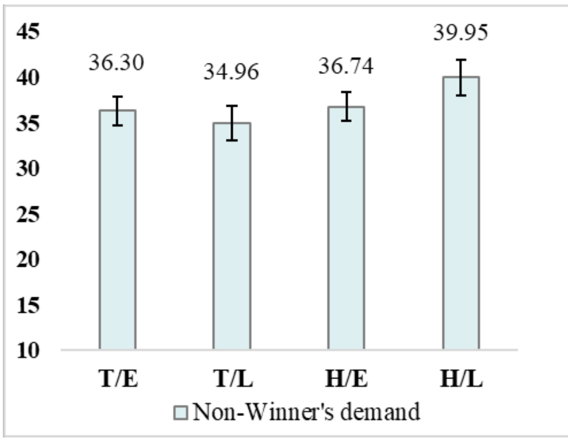
Like all studies in social sciences, this study is not without limitations. One main concern is the external validity of our findings. Given that participants used in our experiment are undergraduate students in Thailand and Singapore, it remains to be seen whether we can replicate the results using samples taken from the general public who reside in one of these countries, or in other countries (Cappelen et al. 2015). Future research may have to return to investigate whether randomly making the element of luck in the bequest salient would make people more likely to redistribute their own inheritance to others who are less fortunate.

More broadly, our provides new evidence of how beliefs about inequality sources determine people's willingness to support taxation and other social welfare initiatives. It also explains why there has been growing opposition to inheritance and estate taxes in many countries (for instance, India, Norway, Australia, Sweden) and how we might be able to shift people's attitudes towards inheritance tax simply by making the luck element much more salient to the general population.

Figure 1: Average ex-post transfers by treatment



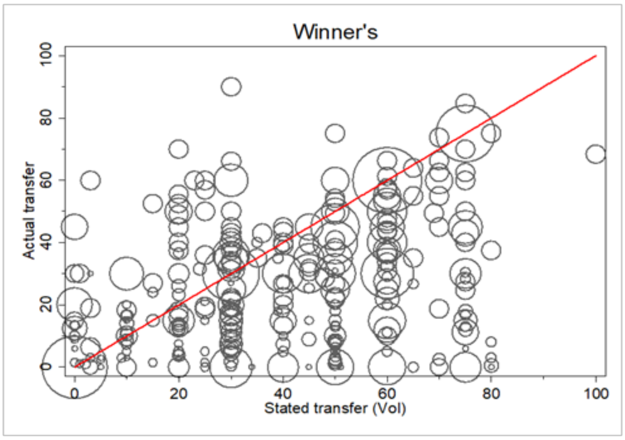
Panel A: Winner's transfer



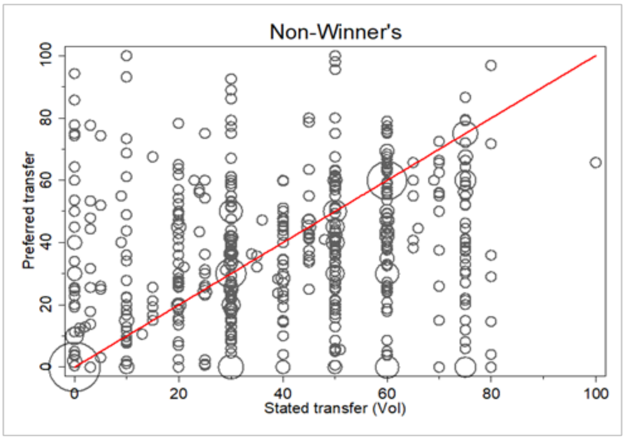
Panel B: Non-winner's demand

Note: These are raw data, which are not regression-corrected. Standard-error bands (95% C.I.) are reported: two standard errors above and two below. T/E, T/L, H/E, and H/L refers to four treatment variations: testator-effort, testator-luck, heir-effort (of testator), and heir-luck (of testator), respectively.

Figure 2: Scatter plots of ex-ante and ex-post transfer decisions



Panel A: Winner's decisions



Panel B: Non-winner's decisions

Note: These are raw data. Sizes of the circle plots reflect number of observations. The 45-degree line (the red line) indicates where the ex-ante transfer value (stated Veil of Ignorance) is exactly equal to the ex-post transfers (actual transfer by the winners in Panel A, and the preferred transfer from the winner in Panel B).

Table 1: Winner's redistribution, luck and inheritance of opportunity

	(1)	(2)	(3)	(4)	(5)
Heir treatment	2.389		2.419	2.044	1.128
	[1.536]		[1.523]	[1.389]	[1.919]
Luck treatment		2.920*	2.943**	2.951**	1.890
		[1.499]	[1.495]	[1.362]	[1.952]
Heir treatment × Luck treatment					2.092
					[2.719]
Stated VoI transfer				0.277***	0.277***
				[0.034]	[0.033]
Won in last round				2.324**	2.319**
				[0.928]	[0.929]
CW = 4				2.462	2.453
				[2.417]	[2.416]
CW = 6				1.225	1.196
				[2.304]	[2.310]
CW = 8				2.721	2.728
				[2.012]	[2.021]
Group Inequality: Middle				-0.347	-0.354
				[1.227]	[1.223]
Group Inequality: High				1.125	1.107
				[1.690]	[1.689]
Female	1.393	1.404	1.223	1.196	1.228
	[1.485]	[1.496]	[1.477]	[1.370]	[1.369]
Economic major	-5.164***	-5.196***	-5.249***	-4.667***	-4.785***
	[1.453]	[1.451]	[1.443]	[1.352]	[1.352]
Singapore Dummy	-5.308***	-5.672***	-5.545***	-7.718***	-7.773***
	[1.806]	[1.825]	[1.810]	[1.726]	[1.721]
Observations	1,440	1,440	1,440	1,440	1,440
Pseudo R-squared	0.00758	0.00794	0.00863	0.0297	0.0299
The implied marginal effect					
2nd generation: Luck treatment ($\beta_1 + \beta_2 + \beta_3$)					5.110***
					[1.935]

Note: *** p<0.01, ** p<0.05, * p<0.1. Tobit regressions (censored at 0 and 100) with robust standard errors clustered at the individual level are in bracket parentheses. All specifications control for gender, age, field of study, and experiment round (total of 10 rounds).

Table 2: Non-winners' preferred redistribution from winners

	(1)	(2)	(3)	(4)	(5)
Heir treatment	1.348		1.351	1.617	0.368
	[1.675]		[1.674]	[1.580]	[3.328]
Luck treatment		0.762	0.766	1.14	-0.816
		[1.609]	[1.607]	[1.513]	[3.361]
Heir treatment × Luck treatment					5.287
					[4.784]
Stated VoI transfer				0.298***	0.479***
				[0.038]	[0.060]
CW = 4				-0.02	-0.044
				[2.245]	[3.606]
CW = 6				-3.303	-5.311
				[2.308]	[3.696]
CW = 8				0.495	0.775
				[2.073]	[3.325]
Group Inequality: Middle				2.298**	3.696**
				[1.084]	[1.752]
Group Inequality: High				1.486	2.392
				[1.516]	[2.431]
Female	1.173	1.227	1.152	0.628	0.935
	[1.552]	[1.544]	[1.553]	[1.480]	[2.379]
Economic major	-3.812**	-3.790**	-3.799**	-3.562**	-5.869***
	[1.509]	[1.511]	[1.509]	[1.412]	[2.262]
Singapore Dummy	-3.290*	-3.444*	-3.332*	-6.143***	-9.878***
	[1.961]	[1.945]	[1.968]	[1.919]	[3.116]
Observations	4,320	4,320	4,320	4,320	4,320
The implied marginal effect					
Heir & Luck treatments ($\beta_1 + \beta_2 + \beta_3$)					4.839
					[3.419]

Note: *** p<0.01, ** p<0.05, * p<0.1. Tobit regressions (censored at 0 and 100) with robust standard errors clustered at the individual level are in bracket parentheses. All specifications control for gender, age, field of study, and experiment round (total of 10 rounds).

Table 3: Winners' redistribution, and non-winners' preferred redistribution: by preferences for inequality at the veil of ignorance stage

Dependent variables:	**Winner's transfer**		**Non-winner's request**	
	Low VoI	**High VoI**	**Low VoI**	**High VoI**
Heir treatment	0.351	1.679	-4.939	6.643
	[1.986]	[3.672]	[4.673]	[4.639]
Luck treatment	2.311	0.494	-5.745	4.832
	[2.092]	[3.751]	[4.605]	[4.965]
Heir treatment × Luck treatment	1.209	4.409	11.182	-0.091
	[2.865]	[5.067]	[6.808]	[6.821]
Stated VoI transfer	0.353***	0.389***	0.659***	0.216
	[0.048]	[0.132]	[0.133]	[0.176]
CW = 4	-0.231	4.037	1.238	-1.895
	[2.572]	[4.695]	[5.329]	[4.608]
CW = 6	-0.647	4.153	-4.757	-5.151
	[2.456]	[4.054]	[5.582]	[4.620]
CW = 8	1.809	3.432	2.409	-1.483
	[2.285]	[3.508]	[4.723]	[4.705]
Group Inequality: Middle	-0.426	-0.776	2.69	4.943*
	[1.385]	[2.104]	[2.382]	[2.552]
Group Inequality: High	-0.817	3.539	1.259	4.015
	[1.829]	[3.189]	[3.460]	[3.380]
Singapore Dummy	-4.726**	-11.325***	-13.400***	-6.062
	[1.866]	[2.965]	[4.983]	[4.141]
Observations	802	638	2,428	1,892
The implied marginal effect				
Heir & Luck treatments ($\beta_1 + \beta_2 + \beta_3$)	3.871**	6.582***	0.498	11.38
	[1.914]	[3.657]	[5.09]	[4.72]

Note: *** p<0.01, ** p<0.05, * p<0.1. Tobit regressions (censored at 0 and 100) with robust standard errors clustered at the individual level are in bracket parentheses. All specifications control for gender, age, field of study, and experiment round (total of 10 rounds).

Table 4: Satisfaction with the final transfer (responded by non-winners in Round 10)

	Full sample		Low VoI	High VoI
	(1)	**(2)**	**(3)**	**(4)**
Heir treatment	0.184	0.019	-0.046	0.101
	[0.117]	[0.056]	[0.081]	[0.073]
Luck treatment	0.230**	0.028	0.037	0.036
	[0.108]	[0.058]	[0.082]	[0.076]
Heir treatment × Luck treatment		0.102	0.067	0.145
		[0.077]	[0.110]	[0.102]
Transfer Gap: Received - Request	0.011***	0.004***	0.003***	0.005***
	[0.001]	[0.000]	[0.001]	[0.001]
Stated VoI transfer	0.000	0.000	-0.003	-0.001
	[0.002]	[0.001]	[0.002]	[0.003]
CW = 4	-0.044	-0.012	-0.01	0.031
	[0.212]	[0.075]	[0.103]	[0.103]
CW = 6	-0.128	-0.048	-0.099	0.068
	[0.205]	[0.072]	[0.101]	[0.096]
CW = 8	0.079	0.026	0.024	0.033
	[0.159]	[0.057]	[0.076]	[0.074]
Group Inequality: Middle	-0.169	-0.06	-0.073	-0.009
	[0.159]	[0.056]	[0.083]	[0.069]
Group Inequality: High	0.021	0.009	-0.05	0.154
	[0.229]	[0.081]	[0.115]	[0.106]
Singapore Dummy	-0.304**	-0.109**	-0.064	-0.115**
	[0.127]	[0.045]	[0.070]	[0.055]
Observations	432	432	245	187
The implied marginal effect				
Heir & Luck treatments ($\beta_1 + \beta_2 + \beta_3$)		0.150***	0.0582	0.282***
		[0.057]	[0.0816]	[0.0724]

Note: *** p<0.01, ** p<0.05, * p<0.1. Linear regressions with robust standard errors. The sample is all non-winners in the final round (10).

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Appendix A.
Additional statistics

Table 1A: Summary Statistics

	Overall	(sd)	By country	
			Thailand	Singapore
Panel A: All subjects (N = 576)			**400**	**176**
Major in economics or business (%)	44.56	(49)	48.0	38.1
Female (%)	60.89	(48)	62.0	58.9
Age	22.04	(1.64)	22.4	21.2
Singaporean (%)	30.56	(46)		
Stated VoI	39.01	(23.18)	35.9	46.1
Panel B: Subjects who are winners:				
CW (overall)	0.60	(0.19)	0.61	0.59
Testator/Luck	0.59	(0.21)	0.59	0.59
Testator/Effort	0.60	(0.2)	0.60	0.58
Heir/Luck	0.60	(0.19)	0.61	0.61
Heir/Effort	0.62	(0.19)	0.61	0.62
Probability of winner's redistribution	0.68	(0.46)	0.72	0.59
Tokens redistributed	23.60	(23.98)	24.66	21.18
Stated VoI	39.61	(23.31)	36.76	46.08

Appendix B.
Procedure and Instructions of the Lab Experiment

B.1. Instruction for Part 1 - the Veil of Ignorance

- You are now taking part in an economic experiment. If you read the following instruction carefully, you can earn a considerable amount of money.
- During the experiment, **you are not allowed to talk to each other**. If you have a question, please raise your hand and the experimenter will assist you.
- Do not look at the others' answers or tell them your answer. You will be asked to leave the lab if the rules are broken.
- You are not allowed to use any mobile devices during an experiment. You are requested to switch off your mobile phone.

<u>Procedure</u>

- Please imagine the following situation.
- You are going to be put into a group of 4 people.
- Each of you in this group will have a different chance of winning the entire pot of reward.
- One individual will be the only winner in the setting, who will take <u>the total reward of 100 units</u>.
- For the winner, she gets to decide how much, if at all, she will transfer her reward to the rest of the group, which it will be divided into other three people in the group equally.
- No one in this group, including you, knows yet who will be the winner.
- What should the winner do? You can decide how much the winner should transfer her reward to the rest of the group in the given box within 30 seconds, click "OK" to proceed.

If you have any questions, or need assistance of any kind, please raise your hand and an experimenter will come to you.

B.2. Instruction for Part 2.1 – Production stage for the Testator/Luck treatment

Assignment

- Each participant will play 'The Slider' game.
- You will see 48 sliders on the screen. Each slider has the value from 0 to 100, with initial value equal to 0. Then, you need to position the slider at exactly 50 within 10 minutes.
- The score can be calculated as follows:

Individual's Score = the amount of slider you completed

- When time is up, the screen will show your score you receive in this task.
- Each player will be assigned a random number of balls with each player's name on them, which are 2, 4, 6 and 8 balls.
- The number of balls that each player received refers to the chance to win the reward and be the winner in the next phase. Or it's called *Chance of Winning*, which can represent in 4 levels including 0.2, 0.4, 0.6, 0.8.
- Therefore, more balls with a player's name means a better chance he will win the reward and be the winner.
- There will be equal number of players assigned for each of the number of balls.
    - First, 10 players are chosen at random to receive 2 balls with their name per person.
    - Then, another 10 players are chosen at random to receive 4 balls with their name per person.
    - Then, another 10 players are chosen at random to receive 6 balls with their name per person.
    - The remaining 10 Players will receive 8 balls with their name per person.
- Each player will be assigned the number of balls by a random draw. This assigned number of balls is maintained for the rest of the game.

Making a decision

- After the assignment, you will be randomly placed into a group of 4 people.
- Each member within the same group has different number of balls. However, the total number of balls in each group will always be equal to 20. For example, if you have 2 balls, you might be matched with 3 other players who either have 4, 6, 8 balls, or 2, 8, 8 balls. You will see the number of balls of other players in your group on the screen.
- Next, you must push the button 'Random Ball'. A random draw is conducted, and one of the 4 group members will be chosen to be the winner, while the other three members will not be winners. The chance to be the winner depends on the number of balls of each player, which are assigned by a random draw in the previous stage. However, it doesn't mean that those who have higher number of balls must be the winner.
- The winner is the one whose name is associated to the chosen ball. The random draw is done electronically.

If you are the winner.

- You will receive a reward. Then, you will decide how much you wish to allocate your reward to the rest of the group, if at all. The amount assigned to the rest of the group will be shared to the other three members in the group equally later.

- You have to type your allocation in each textbox within 30 seconds. After you putting numbers into the box, you must press the OK button to proceed.
- The sum of money allocated to the rest of the group cannot exceed your reward. The amount of money not allocated to the group is kept by the winner.

If you are not the winner

- You will receive nothing.
- You will have to assign the amount you wish the winner will give to the rest of the group. You can make decision in the given box within 30 seconds, click "OK" to proceed.

- This decision-making process is one round of the game. **It will be repeated until all 10 rounds are completed**.
- In round 10, you are also requested to rate your satisfaction **regarding** the amount you actually receive from the winner of the game on a scale of 0 – 10 (where 0 means you are "completely unsatisfied" and 10 means you are "very satisfied").
- At the end of the game, there is a series of questions we would like you to response, including leaving a short message to the player in the next session. You can leave a message in questionnaire and a piece of paper on your desk.

<u>Payoff calculation</u>

- At the end of each round, the computer calculates payment of the winner and the other three members of the group as follows:
- **The winner's payoff**
  = the amount of reward received – money allocated to the rest of the group
- **Those who is not the winner's payoff**
  = one third of money allocated to the rest of the group
- When the game finishes, the individual's payoff will be randomly drawn from one round in the session.
- At the end of the experiment, we would like you to leave a message to the player in the next session, which he/she will inherit the number of balls you got in this session in order to participate in the next session. If you do not leave a short message in a piece of paper, your payoff will be deducted by 20 THB (1 SGD).

If you have any questions, or need assistance of any kind, please raise your hand and an experimenter will come to you.

B.3. Instruction for Part 2.2 – Production stage for the Testator/Effort treatment

<u>Assignment</u>

- Each participant will play 'The Slider' game.
- You will see 48 sliders on the screen. Each slider has the value from 0 to 100, with initial value equal to 0. Then, you need to position the slider at exactly 50 within 10 minutes.
- The score can be calculated as follows:

  Individual's Score = the amount of slider you completed
- When time is up, the screen will show your score you received in this task.
- <u>All players in the session will be ranked in this score "achievement</u>. And Each player will be assigned the number of balls with each player's name on them, which are 2, 4, 6 and 8 balls. Those who have higher scores will get more balls than those of lower scores.
- The number of balls that each player received refers to the chance to win the reward and be the winner in the next phase. Or it's called <u>*Chance of Winning*</u>, which can represent in 4 levels including 0.2, 0.4, 0.6, 0.8 respectively.
- Therefore, more balls with a player's name means a better chance he will win the reward and be the winner.
- There will be equal number of players assigned for each of the number of balls.
  - 10 players who achieved the lowest score will receive 2 balls with their name per person.
  - The next 10 players who achieved a higher score will receive 4 balls with their name per person.
  - The next 10 players who achieved a higher score will receive 6 balls with their name per person.
  - 10 players who achieved the highest score will receive 8 balls with their name per person.
- Each player will be assigned the number of balls by ranking the scores. This assigned number of balls is maintained for the rest of the game.

<u>Making a decision</u>

- After the assignment, you will be randomly placed into a group of 4 people.
- Each member within the same group has different number of balls. However, the total number of balls in each group will always be equal to 20. For example, if you have 2 balls, you might be matched with 3 other players who either have 4, 6, 8 balls, or 2, 8, 8 balls. You will see the number of balls of other players in your group on the screen.
- Next, you must push the button "Random Ball". A random draw is conducted, and one of the 4 group members will be chosen to be the winner, while the other three members will not be winners. The chance to be the winner depends on the number of balls of each player, which are assigned by ranking the scores in the previous stage. However, it doesn't mean that those who have higher number of balls must be the winner.
- The winner is the one whose name is associated to the chosen ball. The random draw is done electronically.

If you are the winner.

- You will receive a reward. Then, you will decide how much you wish to allocate your reward to the rest of the group, if at all. The amount assigned to the rest of the group will be shared to the other three members in the group equally later.
- You have to type your allocation in each textbox within 30 seconds. After you putting numbers into the box, you must press the OK button to proceed.
- The sum of money allocated to the rest of the group cannot exceed your reward. The amount of money not allocated to the group is kept by the winner.

If you are not the winner

- You will receive nothing.
- You will have to assign the amount you wish the winner will give to the rest of the group. You can make decision in the given box within 30 seconds, click “OK” to proceed.

- This decision-making process is one round of the game. **It will be repeated until all 10 rounds are completed**.
- In round 10, you are also requested to rate your satisfaction **regarding** the amount you actually receive from the winner of the game on a scale of 0 – 10 (where 0 means you are “completely unsatisfied” and 10 means you are “very satisfied”).
- At the end of the game, there is a series of questions we would like you to response, including leaving a short message to the player in the next session. You can leave a message in questionnaire and a piece of paper on your desk.

<u>Payoff calculation</u>

- At the end of each round, the computer calculates payment of the winner and the other three members of the group as follows:
- **The winner’s payoff**
  = the amount of reward received – money allocated to the rest of the group
- **Those who is not the winner’s payoff**
  = one third of money allocated to the rest of the group
- When the game finishes, the individual’s payoff will be randomly drawn from one round in the session.
- At the end of the experiment, we would like you to leave a message to the player in the next session, which he/she will inherit the number of balls you got in this session in order to participate in the next session. If you do not leave a short message in a piece of paper, your payoff will be deducted by 20 THB (1 SGD).

If you have any questions, or need assistance of any kind, please raise your hand and an experimenter will come to you.

B.4. Instruction for Part 2.3 – Production stage for the Heir/Luck treatment

Assignment

- Each participant will play 'The Slider' game.
- You will see 48 sliders on the screen. Each slider has the value from 0 to 100, with initial value equal to 0. Then, you need to position the slider at exactly 50 within 10 minutes.
- The score can be calculated as follows:

  Individual's Score = the amount of slider you completed
- When time is up, the screen will show your score you receive in this task.
- Each player will be assigned the number of balls with each player's name on them, which are 2, 4, 6 and 8 balls.
- This number of balls you receive is from a *senior* at […] University who played this game in the previous session. A senior had chosen your I.D. number and passed on all his/her balls to you so that you have a chance to participate in this session.
- The *seniors* were assigned the number of balls by a random draw. They were randomly chosen and then were assigned their balls with their name as below.
  - First, 10 players were chosen at random to receive 2 balls with their name per person.
  - Then, another 10 players were chosen at random to receive 4 balls with their name per person.
  - Then, another 10 players were chosen at random to receive 4 balls with their name per person.
  - The remaining 10 players received 8 balls with their name per person.
- Therefore, if your senior was randomly assigned 4 balls, you will also get 4 balls. Then, you have nothing more to do.
- In addition, your senior left a short message for you. You can see the message on the screen and a piece of paper on your desk.
- The number of balls that each player received refers to the chance to win the reward and be the winner in the next phase. Or it's called *Chance of Winning*, which can represent in 4 levels including 0.2, 0.4, 0.6, 0.8 respectively.
- Therefore, more balls with a player's name means a better chance he will win the reward and be the winner.
- This number of balls is maintained for the rest of the game.

Making a decision

- After the assignment, you will be randomly placed into a group of 4 people.
- Each member within the same group has different number of balls. However, the total number of balls in each group will always be equal to 20. For example, if you have 2 balls, you might be matched with 3 other players who either have 4, 6, 8 balls, or 2, 8, 8 balls. You will see the number of balls of other players in your group on the screen.
- Next, you must push the button 'Random Ball'. A random draw is conducted, and one of the 4 group members will be chosen to be the winner, while the other three members will not be winners. The chance to be the winner depends on the number of balls of each player, which are assigned by a random draw in the previous stage. However, it doesn't mean that those who have higher number of balls must be the winner.

- The winner is the one whose name is associated to the chosen ball. The random draw is done electronically.

  If you are the winner.
  - You will receive a reward. Then, you will decide how much you wish to allocate your reward to the rest of the group, if at all. The amount assigned to the rest of the group will be shared to the other three members in the group equally later.
  - You have to type your allocation in each textbox within 30 seconds. After you putting numbers into the box, you must press the OK button to proceed.
  - The sum of money allocated to the rest of the group cannot exceed your reward. The amount of money not allocated to the group is kept by the winner.

  If you are not the winner
  - You will receive nothing.
  - You will have to assign the amount you wish the winner will give to the rest of the group. You can make decision in the given box within 30 seconds, click “OK” to proceed.

- This decision-making process is one round of the game. **It will be repeated until all 10 rounds are completed**.
- In round 10, you are also requested to rate your satisfaction **regarding** the amount you actually receive from the winner of the game on a scale of 0 – 10 (where 0 means you are “completely unsatisfied” and 10 means you are “very satisfied”).
- At the end of the game, there is a series of questions we would like you to response.

<u>Payoff calculation</u>

- At the end of each round, the computer calculates payment of the winner and the other three members of the group as follows:
- **The winner’s payoff**
  = the amount of reward received – money allocated to the rest of the group
- **Those who is not the winner’s payoff**
  = one third of money allocated to the rest of the group
- When the game finishes, the individual’s payoff will be randomly drawn from one round in the session.

If you have any questions, or need assistance of any kind, please raise your hand and an experimenter will come to you.

B.5. Instruction for Part 2.4 – Production stage for the Heir/Effort treatment

<u>Assignment</u>

- Each participant will play "The slider" game.
- You will see 48 sliders on the screen. Each slider has the value from 0 to 100, with initial value equal to 0. Then, you need to position the slider at exactly 50 within 10 minutes.
- The score can be calculated as follows:

  Individual's Score = the amount of slider you completed

- When time is up, the screen will show your score you received in this task.
- Each player will be assigned the number of balls with each player's name on them, which are 2, 4, 6 and 8 balls.
- This number of balls you receive is from a *senior* at […] University who played this game in the previous session. A senior had chosen your I.D. number and passed on all his/her balls to you so that you have a chance to participate in this session.
- The seniors were assigned the number of balls by doing the task you just played. They were then ranked according to the achievement and then were assigned their balls with their name. Those who have higher scores will get more balls than those of lower scores.
  - 10 players who achieved the lowest score received 2 balls with their name per person.
  - The next 10 players who achieved a higher score received 4 balls with their name per person.
  - The next 10 players who achieved a higher score received 6 balls with their name per person.
  - 10 players who achieved the highest score received 8 balls with their name per person.
- Therefore, if your senior was assigned 4 balls according to the rank of their scores from the slider game, you will also get 4 balls. Then, you have nothing to do.
- In addition, your senior left a short message for you. You can see the message on the screen and a piece of paper on your desk.
- The number of balls that each player received refers to the chance to win the reward and be the winner in the next phase. Or it's called <u>*Chance of Winning*</u>, which can represent in 4 levels including 0.2, 0.4, 0.6, 0.8 respectively.
- Therefore, more balls with a player's name means a better chance he will win the reward and be the winner.
- This number of balls is maintained for the rest of the game.

Making a decision

- After the assignment, you will be randomly placed into a group of 4 people.
- Each member within the same group has different number of balls. However, the total number of balls in each group will always be equal to 20. For example, if you have 2 balls, you might be matched with 3 other players who either have 4, 6, 8 balls, or 2, 8, 8 balls. You will see the number of balls of other players in your group on the screen.
- Next, you must push the button ‘Random Ball’. A random draw is conducted, and one of the 4 group members will be chosen to be the winner, while the other three members will not be winners. The chance to be the winner depends on the number of balls of each player, which are assigned by ranking the scores in the previous stage. However, it doesn’t mean that those who have higher number of balls must be the winner.
- The winner is the one whose name is associated to the chosen ball. The random draw is done electronically.

  If you are the winner.
  - You will receive a reward. Then, you will decide how much you wish to allocate your reward to the rest of the group, if at all. The amount assigned to the rest of the group will be shared to the other three members in the group equally later.
  - You have to type your allocation in each textbox within 30 seconds. After you putting numbers into the box, you must press the OK button to proceed.
  - The sum of money allocated to the rest of the group cannot exceed your reward. The amount of money not allocated to the group is kept by the winner.

  If you are not the winner
  - You will receive nothing.
  - You will have to assign the amount you wish the winner will give to the rest of the group. You can make decision in the given box within 30 seconds, click “OK” to proceed.

- This decision-making process is one round of the game. **It will be repeated until all 10 rounds are completed**.
- In round 10, you are also requested to rate your satisfaction **regarding** the amount you actually receive from the winner of the game on a scale of 0 – 10 (where 0 means you are “completely unsatisfied” and 10 means you are “very satisfied”).
- At the end of the game, there is a series of questions we would like you to response.

Payoff calculation

- At the end of each round, the computer calculates payment of the winner and the other three members of the group as follows:
- **The winner's payoff**
  = the amount of reward received – money allocated to the rest of the group
- **Those who is not the winner's payoff**
  = one third of money allocated to the rest of the group
- When the game finishes, the individual's payoff will be randomly drawn from one round in the session.

If you have any questions, or need assistance of any kind, please raise your hand and an experimenter will come to you.

B.6. Screen display of the slider game