Fair Division of a Dollar among Partners

1 Introduction

This research seminar aims at discussing different ways to distribute a given amount of money amongst a given number of agents in a fair way, when agents have subjective (and possibly conflicting) perceptions on how the amount should be divided. The text in this document is taken from a research proposal on this topic.

Consider a group of three or more partners in a law firm or some other enterprise who must divide their joint profit at the end of the year, when each partner has contributed in different ways, e.g. one has worked more hours on the cases, while another has acquired more clients. They cannot divide the profit in proportion to their contributions because contributions cannot be measured objectively and because contributions are in 'different currencies' so that there is no straightforward way to separate them in a meaningful way. Also, asking an impartial arbitrator or expert to perform the division would be of limited help since such an external agent would be in a far worse condition to discern their relative contributions than they are themselves. So the partners may have to rely on their own subjective perceptions on how the profit should be divided fairly. The question then is how to aggregate those subjective perceptions. The partners may find it useful to use an aggregation rule or procedure to reach a consensus. The obvious question is which rule they should use.

The real world problem that motivated this research question provides another example: In Tyrol, a new water power plant will be built in a location that has common borders with three communities. The company who owns and operates the power plant offers to pay a certain amount of money to the three communities in exchange for the rights to use land and water, so that it can build and operate the power plant. The company offered one total amount to all three communities and is not willing to negotiate separately with each community. Now the communities have to decide how to distribute the money amongst them, i.e. the question is what would be the fair share for each community, given that they all give up different things in exchange: one owns more land while another owns more water rights etc. Not surprisingly, the communities disagree on how the amount should be divided fairly. Again the question is how to aggregate the conflicting evaluations of claims.

This problem can obviously be generalized to represent various related situations of this type. For the purpose of this research seminar, we shall consider the following characterization of the problem: Suppose a given amount of money (“the dollar”) shall be distributed amongst a given number of agents, who all have contributed to the production of the dollar. Individual contributions may not be objectively measurable, and even if they are, there exists no obvious way to separate them in a meaningful way because contributions are in 'different currencies' and/or the production function is nonlinear. Thus, agents may disagree on what is a fair division of the dollar among them. Throughout, we assume that agents may not only care about their own share or payoff, but also about other agents’ shares of the dollar. We call an allocation of the dollar that is considered as fair by agent $i$ as her subjective evaluation of claims. The problem then is how to aggregate the possibly conflicting subjective evaluations of claims of the $n$ agents. From this characterization, three main questions emerge that we wish to pursue:

- allocative fairness: which allocations are perceived as fair by the agents;
- procedural fairness: which procedures or rules of dividing the dollar are perceived as fair;
- efficiency: which procedures or rules produce an efficient outcome (in the sense that the whole dollar is divided).

We will refer to this description as the subjective claims problem.

2 Related Studies

A related problem that has been studied in the literature is the so-called 'objective claims' or 'bankruptcy' problem: Suppose a firm goes bankrupt. What is the fair way of dividing its liquidation value among its creditors when the sum of the creditors’ claims exceeds the liquidation value? Note that in this (objective claims) problem the starting point is one (publicly known) vector of objective claims, one claim for each of the $n$ agents. By contrast, in our (subjective claims) problem the starting point is $n$ (privately known) vectors of subjective claims, one vector for each of the $n$ agents (where the vector of agent $i$ describes her perception of how the dollar should be divided). Also, the problem in the objective claims setting is that the claims of the $n$ agents sum up to more than the amount available while the problem considered here is how to aggregate $n$ vectors of subjective claims, where the $n$ claims in each vector sum up exactly to the amount available. The main goal of the objective-claims-literature is to identify well-behaved rules for associating with each claims problem (an available amount and a vector of claims adding up to more than the available amount) a division between the claimants of the amount available (see Moulin 2002, Thomson 2003 for surveys). Three important rules have emerged from the axiomatic branch of this literature: (1) the proportional rule, which awards payoffs proportional to claims, (2) the constrained equal awards rule, which divides the total amount equally amongst all claimants, with the constraint that no agent gets more than her claim, and (3) the constrained equal losses rule, which imposes equal losses upon all agents, with the constraint that no agent should receive a negative amount. It is by no means clear which of the three rules should be selected as the solution to the conflicting objective claims problem. One approach for selecting a rule is to investigate how people evaluate this situation and the proposed solutions. Two methods are important in this context: (1) a normative judgment by asking the arbitrator question, i.e. subjects are asked as impartial outside observers what they consider a fair division; and (2) experimental evidence from actual behavior when people take an active role as a claimant. Three behavioral studies employing those two methods have been conducted so far to assess the three rules to the objective claims problem empirically. One is the study by Herrero et al. (2003), the other two are by Gächter and Riedl (2005 and 2007).

Starting point of the study by Herrero et al. (2003) is a specific objective claims problem, that is, an available amount and a publicly known vector of claims adding up to more than the available amount. As for the normative judgment, they use various framings to see how subjects answer the arbitrator question, and they find that the proportional rule is by far the preferred division rule when people act as outside observers. Furthermore, to investigate actual behavior in an experiment, subjects played three games designed such that the unique equilibrium allocation coincides with the recommendation of one of the three rules. The games have the property that there is always one player with a weakly dominant strategy by which she can force an outcome of the game in her favor (and that outcome corresponds to one of the three rules). The data shows that if a procedure is designed to implement a particular outcome, equilibrium behavior (assuming standard preferences) is observed in the experiment and thus the corresponding
division rule is implemented. However, subjects here are not led by distributional motives but by dominance. In the treatment in which majority decides on a rule, proportionality prevails.

In their earlier paper, Gächter and Riedl (2005) investigate which entitlements are derived from contributions to a fixed resource that is to be divided, when only the order of individual contributions is known and when individuals are given a precise anchor for the entitlements in the form of unequal claims exceeding the amount available. In an experiment, paired subjects first acquire unequal claims in a competitive task, in which the performance of the two subjects is compared. The feedback only gives information about the order, not the precise performance of the subjects. With a certain probability these unequal claims (1/3 for the low performer, 2/3 for the high performer) are actually paid out to the subjects. With the remaining probability subjects are told that the claims are infeasible and that they have to negotiate an agreement on the division of the now lower sum in a symmetric free-form bargaining. The results show that the agreements were highly correlated with the claims subjects derived from the competitive task and the induced unequal division rule. Furthermore, the evaluation of the arbitrator question showed that fairness judgment is not just cheap talk but is highly correlated with concession behavior in the bargaining process.

In their second paper, Gächter and Riedl (2007) investigate a similar setup, this time also varying the claims points. Evaluating the answers to the arbitrator question they find that the proportional rule does very well in people's normative judgments. This holds irrespective of the asymmetry of claims. The appeal of the other two rules in the normative judgments depends on the asymmetry of claims. When (induced) claims are very asymmetric, subjects prefer the more egalitarian constrained equal awards rule, while when claims are less asymmetric, the more unequal constrained equal losses rule is preferred. Interestingly, there is a strong difference between the outcome in actual negotiations and normative judgments. In the actual negotiations the constrained equal awards rule predicts the actual agreements best for all claims points.

3 Our Approach

One way to look at the objective claims problem described in the previous section is the following: Starting point is one precise anchor - a vector of objective claims that exceeds the amount available - and given this anchor a person has to form her own subjective evaluation of claims represented by a vector of claims summing up to the amount available. The three rules discussed above can help to come up with such a subjective evaluation of claims and if different persons adhere to the same rule they will end up with the same subjective evaluation. This may alleviate the aggregation problem considered here or make it redundant. In our subjective claims problem, however, there is no objective anchor. Thus, the rules described in the previous section cannot be applied, and the subjective evaluations of claims of the partners might be very conflicting, depending upon the partner problem under consideration. This makes the aggregation problem interesting.

In order to induce subjective evaluations of claims we start from a situation as described in the introduction. There are \( n \) individuals who contribute to a joint project. The agents have only ordinal information on individual contributions and the final outcome - a sum of money denoted by \( S \) - is increasing in individual contributions, but it does so in a non-linear way. Thus, agents may disagree amongst them about what a fair division of the outcome is. We assume that
individuals do not only care about their own share or payoff, but also about other agents’ shares of $S$. We call an allocation of the dollar that is considered as fair by agent $i$ as her subjective evaluation of claims. Such a subjective evaluation is a vector with $n$ entries summing up to $S$. We denote the subjective evaluation of agent $i$ by $c_i^j = (c_i^1, \ldots, c_i^n)$ where $c_i^j$ stands for the share agent $j$ should get from agent $i$'s perspective. The problem then is how to aggregate the possibly conflicting subjective evaluations of claims of the $n$ agents. That is, we are searching for an allocation $s = (s_1, \ldots, s_n)$ where $\sum_i s_i \leq S$, or alternatively, we are searching for a rule that implements such an allocation, that respects in some sense the subjective evaluations of claims of the $n$ agents and that is also efficient (in the sense of minimizing $S - \sum_i s_i$).

One way to operationalize our problem would be to introduce a social planner who is interested in a solution in which each agent is as close as possible to his subjective evaluation of claims, and to assume that the planner's problem is his incomplete information about agents' preferences. One could envision that agents have quasi linear utility functions defined over $s$ and $c_i^j$ and that agent $i$'s utility increases in $s_i$ and decreases in the (properly defined) distance of the final allocation $s$ from her subjective evaluation of claims $c_i^j$. One could then search for an allocation that maximizes a utilitarian social welfare function defined as the sum of the individual utilities.

Our goal here is less ambitious. What we want to do is to look at an (experimentally implemented) real subjective claims problem and to compare the performance of different existing rules and procedures that lead to an allocation in that context. We are interested in subjects' answers to the following questions:

- how well does each rule or procedure perform in terms of allocative fairness; that is, how fair do subjects consider the allocation that results from the respective rule?
- how well does each rule or procedure perform in terms of procedural fairness; that is, how fair do subjects consider the rule or procedure itself?
- how well does each rule or procedure perform in terms of efficiency; that is, how large is the difference between $\sum_i s_i$ and $S$?

We plan to compare the performance of three mechanisms and four bargaining protocols in each of those three dimensions. In describing the mechanisms and bargaining protocols we assume that $n = 3$ (this is the minimal number of agents needed for the first of the mechanisms described below to work) and that the available amount $S$ is 1 (the ominous dollar).

3.1 Three Mechanisms

First, we will consider three mechanisms developed in the literature, which implement a division of the dollar (or less) with certain desirable properties. These mechanisms use reports of agents as input, and the output is a final share of the dollar for each agent depending on all reports. Suppose agents are asked to report their subjective evaluations of claims and denote the report of agent $i$ by $m_i = (m_i^1, m_i^2, m_i^3)$, where $m$ stands for message. (Note that if agent $i$ reports truthfully than $m_i^j = c_i^j$). Then, from agent $i$'s report, only $m_i^j$ and $m_i^k$ (with $\{i, j, k\} = \{1, 2, 3\}$) is used as an input in the first mechanism considered below; only $m_i^1$ is used as an input in second mechanism considered below; and the whole vector $m_i$ is used as input in the third mechanism considered below. Also, in the first mechanism, the $s_i$ part of the output of the mechanism depends only on
the reports of the other two agents, while in the other two mechanisms each $s_i$ depends on all reports.

**de Clippel, Moulin and Tideman: Impartial Division Rule**

In a recent paper, de Clippel, Moulin and Tideman (2008) proposed a new way of dividing a dollar when claims are subjective and unequal, which corresponds precisely to our context. They show that for three players there is a unique division rule that is impartial and consensual. Impartiality requires (i) that from any agent’s report only her evaluation of the (relative) shares that the other agents deserve enters the mechanism and (ii) that the share of any agent is determined exclusively by the reports of other agents. Consensuality requires that if there is a way to divide the dollar that agrees with all individual reports, then this should be the outcome.

The rule proposed by de Clippel et al. is a function of all three agents’ reports, where an agent’s report in the original version is the relative share of the two agents other than himself. In other words, in the original version of the mechanism each player is only asked to evaluate the other players’ relative payoffs, i.e. agent $i$ is asked only how much should player $j$ should get compared to player $k$ (where $\{i, j, k\} = \{1, 2, 3\}$). Denote by $r_{jk}^i$ agent $i$’s report for the ratio of $j$’s share to $k$’s share. [In the notation introduced above, $r_{jk}^i = c_j/c_k$; that is, $r_{jk}^i = 2$ means that player $i$ has reported that from her perspective player $j$ deserves twice as much as player $k$.] Also, as before, denote by $s_i$ player $i$’s final monetary payoff. Then the aggregation of each player’s evaluation of all other players’ relative payoffs leads to the following payoffs for each player:

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\begin{align*}
 s_1 &= \frac{1}{1 + r_{31}^1 + r_{21}^1} ; \\
 s_2 &= \frac{1}{1 + r_{32}^2 + r_{12}^2} ; \\
 s_3 &= \frac{1}{1 + r_{23}^3 + r_{13}^3} ,
\end{align*}
$$

where $r_{jk}^i = c_j/c_k$ for $\{i, j, k\} = \{1, 2, 3\}$.

With three agents, this rule may lead to an inefficient allocation, i.e. when agents’ reports are inconsistent, the sum of the three shares is less than one and thus not the entire dollar will be distributed. It is an open question how this rule performs in terms of efficiency, that is, how large the unallocated surplus will be, since this rule has never been tested experimentally. Also, it is an open question how fair players consider the mechanism itself and how fair they consider the allocation generated by the mechanism. We consider this a highly interesting mechanism to our division problem that is worth being tested experimentally.

**Mumy: Rule to Solve Captain McWhirr’s Problem**

The second mechanism we intend to discuss was proposed by Mumy (1981). Originally, Mumy develops a solution to the so-called Captain MacWhirr problem, in which a captain on a ship keeps the various amounts of money owned by his men in separate boxes, but after a big storm the contents of the boxes get mixed up and it is not visible anymore who owned which amount. The captain only knows the total amount, and he now has to figure out how to pay back each of his men exactly the amount that belongs to them. Each of the men obviously knows what they own, but, depending on the mechanism in use, they might not have an incentive to tell the truth when claiming their money back. Mumy shows that with a mechanism that punishes an agent (i.e. lowers his payoff) if she asks for more than what is left for her after subtracting all other agents’ claims from the total amount available, it is in each agents’ best interest to ask exactly the amount that belongs to them. Formally, from agent $i$’s report only $m'_i$ enters the mechanism and agent $i$’s share is given by
\[ s_i = m_i^\prime - \max\{a(\sum m_j^\prime - 1), 0\}, \text{ where } a > 1. \]

We think it may be interesting to apply this mechanism to the subjective claims problem. The mechanism requires only the amount claimed by each agent as input, and the payoff scheme gives an incentive for agents not to overstate their claims, i.e. they should try to submit a claim that is compatible with all other claims, which again may point to a fair solution in the subjective claims problem. Again, it is an open question how this rule performs in terms of efficiency, that is, how large the unallocated surplus will be, since this rule has never been tested experimentally. Also, it is an open question how fair players consider the mechanism itself and how fair they consider the allocation generated by the mechanism.

**Brams and Taylor: Divide the Dollar Rule**

The third mechanism we want to consider was developed by Brams and Taylor (1994). They first consider a fair-division problem for the case in which no player has justifiable claims to more-than-equal shares and then they consider two variants that incorporate player-specific 'entitlements'. One variant employs publicly known, player-specific entitlements \( e_i \) that sum to the available amount of one dollar along with a rule that specifies that if the players' reports for their own claim, \( m_i^\prime \), sum up to more than one, then the claims are given priority in the order of their 'greed level' defined by \( m_i^\prime - e_i \), starting with the lowest greed level. They show that this mechanism has the property that iterative elimination of weakly dominated strategies induces an outcome in which each player reports \( m_i^\prime = e_i \) plus \( \varepsilon \). More interesting for the present context is the second variant they discuss. It is similar to the first variant except that (i) there is no publicly known vector of player-specific entitlements, (ii) that each player \( i \) is now asked to report a whole vector \( m_i^\prime = (m_i^\prime 1, m_i^\prime 2, m_i^\prime 3) \), and (iii) the 'entitlement' of player \( i \), \( e_i \), is now calculated as \( e_i = (m_i^\prime 1 + m_i^\prime 2 + m_i^\prime 3)/2 \). Unfortunately, Brahmns and Taylor provide no formal results for this case; there is only an informal discussion. Nevertheless, we think it would be interesting to test this mechanism in our context. It forces agents to evaluate their own entitlement from everybody else’s point of view, since a discrepancy between the two bears the risk of a lower payoff. Note that this mechanism always yields an efficient outcome. This rule has also never been tested experimentally, and again, it is an open question how fair players consider the mechanism itself and how fair they consider the allocation generated by the mechanism.

**3.2 Four Bargaining Procedures**

Besides these three mechanisms, there are various bargaining procedures that could potentially be used to solve our subjective claims problem. When only two players are involved, it is clear that both have to agree on the division of the dollar. With three players, one has to decide whether to follow a majoritarian decision rule, i.e. a division is implemented if two players agree on it, or a unanimous decision rule, in which all players have to agree. Majoritarian decision rules received high attention in political bargaining and voting models (see the theoretical model by Baron and Ferejohn 1987 and 1989, and the corresponding experimental literature by Frechette, Kagel, Lehrer 2003, Frechette, Kagel, Morelli 2005a and 2005b, Diermeier and Morton 2004, Diermeier and Gailmard 2006), and further bargaining procedures that used majoritarian decision rule were developed and tested experimentally (e.g. Morelli 1999). Ultimatum bargaining with three players in different bargaining procedures was analyzed by Güth and van Damme (1996) and Güth et al. (1996). We are interested in unanimity bargaining procedures since we consider them

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1 To avoid negative payoffs, we intend to adjust the outcome function to \( s_i = \max\{ m_i^\prime - \max\{a(\sum m_j^\prime - 1), 0\}, 0\} \).
as more adequate for the problem considered here. Several versions can be found in the theoretical literature:

**Shaked’s Alternating Offers Unanimity Bargaining Game**

Agents are randomly assigned roles of player 1, 2 and 3. Player 1 makes the first offer at time $t = 1$, offering $x = (x_1, x_2, x_3)$, where $x_i$ is player $i$’s proposed share and where $\sum x_i = 1$. Player 2 and player 3 then respond sequentially (there also exists a simultaneous variant, see Haller 1986), each either accepting or rejecting the proposal. If both accept, then the game ends with player $i$ getting a payoff of $x_i$. A rejection takes the game to the next round, where player 2 now makes an offer and players 3 and 1 sequentially respond. If one of the latter two player rejects, then the next round begins with player 3 making an offer, and so on. If an offer $x$ is accepted by both responders in round $t$, the payoff to player $i$ is $d^{t-1} x_i$, where $d < 1$ is the common discount factor. Shaked showed that for this game every allocation of the dollar can be sustained as a subgame perfect equilibrium if $d > \frac{1}{2}$.

**Torstensson’s Demand Variant of the Unanimity Bargaining Game**

Again agents are randomly assigned roles of player 1, 2 and 3. The first two players make successive demands regarding their own shares, $x_1$ and $x_2$. If these demands are compatible ($x_1 + x_2 \leq 1$), and the third player accepts, the game ends with an agreement in which player 3 gets $x_3 = 1 - x_1 - x_2$. If demands are not compatible, or if the third player rejects, a new round of bargaining is entered, this time the original player 2 in the role of player 1, 3 in the role of player 2 and 1 in the rule of player 3. Again, payoffs are discounted. The prediction is that most agreements can be supported as subgame perfect equilibrium outcomes by specified state-dependent strategies. It leads to an only slightly restricted solution set compared to Shaked’s procedure.

**Krishna/Serrano’s Unanimity Bargaining Model**

Again agents are randomly assigned roles and the game proceeds in rounds. In the first round player 1 proposes a complete division $x = (x_1, x_2, x_3)$. If the other two players (the responders) agree, the game is over. If only one of the responders agrees, she can leave with the respective payoff she accepted. The responder who disagrees remains in the game with the proposer, and we have a two-person alternating-offers bargaining game over the remainder of the cake. If no responder agrees, the second round begins with player 2 as the proposer. This bargaining procedure leads to a subgame perfect equilibrium, in which an agreement is reached in the first period, where the proposer gets $1/(1+2d)$, and each responder gets $d/(1+2d)$.

**Free-Form Unanimity Bargaining**

There is no fixed bargaining protocol. Players are allowed to make any proposal as long as the sum of the shares does not exceed 1. Players also have the possibility to send messages. In order to make this type of bargaining comparable to the previous three procedures, we would introduce a discount rate here as well, that is, the later an agreement is reached in real time, the less it should be worth to subjects. As there are no bargaining periods, one could just apply a discrete discount rate to each given number of minutes that expired since bargaining started. A comparison of experimental results using the four bargaining procedures should already yield interesting results, since none of them has ever been tested experimentally, and thus there is no
benchmark regarding outcomes and behavior that can be expected from applying these procedures.

4 Experimental Implementation

Three subjects, called P1, P2 and P3, shall be grouped together to first produce and then distribute a given amount of money between them. In order to produce the amount, subjects shall be given a real effort task, such as correctly multiplying as many 2-digit numbers as possible in a given time period. Depending on their performance in this task, subjects shall then be assigned to a category: low, medium, or high, and each category is worth a given number of points. For instance, low performance = 1, medium = 2 and high = 3. A non-linear production function then determines the size of the cake to be distributed. This function can be some constant plus the points P1 achieved in the real effort task times the points P2 achieved times the points P3 achieved. The nonlinear production function makes it very difficult to determine the own contribution to the final outcome and the contribution of others. For instance, if there is one low-performing, one medium performing and one high-performing player and if the constant is 4, then the cake size is 10, but there is no obvious way to disentangle the contributions of the three players.

After the real effort task, subjects shall receive ordinal feedback regarding their own as well as their partners’ performance and the resulting cake size $S$. Then each subject is privately asked what he or she considers a fair division of the cake they jointly produced. That is, each subject is asked to report a vector $m^i = (m^i_1, m^i_2, m^i_3)$, where the entries have to sum up to $S$, knowing that nothing in the rest of the experiment depends on her answer here. The arbitrator question is necessary in order to compare subjects’ view of a fair division to the various outcomes of the mechanisms and bargaining procedures.

After answering the arbitrator question, each subject will be presented the three mechanisms described above successively, i.e. de Clippel/Moulin/Tideman’s impartial division rule, Mumy’s rule to solve Captain Whirr’s problem, and Brams/Taylor’s divide the dollar rule. Each player is then not only asked for the necessary input for each mechanism, but for a division proposal in each case. That is, in de Clippel/Moulin/Tideman’s impartial division rule, player $i$ is asked to submit a vector $m^i = (m^i_1, m^i_2, m^i_3)$, knowing that only her (relative) evaluation of her partners (that is, only $r^i_{jk} = c^i_j / c^i_k$ for $\{i, j, k\} = \{1, 2, 3\}$) enters the mechanism. Similarly, in Mumy’s rule to solve Captain Whirr’s problem, player $i$ is asked to submit a vector $m^i = (m^i_1, m^i_2, m^i_3)$, this time knowing that from her report only $m^i_i$ will enter the mechanism. And in Brams/Taylor’s divide the dollar rule, each player $i$ would again be asked to submit a vector $m^i = (m^i_1, m^i_2, m^i_3)$, this time knowing that the whole vector is relevant for this mechanism.

All information solicited as described above will be given without having immediate feedback from another mechanism, i.e. the reports for each mechanism are asked without knowing the result of any previously played mechanism. In this way, we can exploit the strategy method in order to gather more data points that are directly comparable across the three mechanisms.

However, we cannot use the strategy method to request decision vectors for the four bargaining procedures described above, since these are infinite-horizon bargaining games which should be really played by subjects to see what is acceptable for them in each situation. Here, we could use...
a kind of 'partial strategy method' by asking each player for a first division proposal for each of the bargaining procedures used, and then continue each bargaining procedure by just using the information needed from each player for the respective procedure. Again, this has the advantage of generating more data points and (if we really ask for division proposals and not only for the element of the proposal needed for the respective bargaining procedure) to generate data points that are directly comparable to those used in the other procedures and the mechanisms described above. Subjects would then be informed that only one of the four bargaining procedures would be randomly determined and played after they submit their division proposal for each procedure. Each subject will thus play exactly one bargaining game following the respective bargaining procedure. They will have immediate feedback from the bargaining game, and at the end of the experiment they will receive feedback concerning their payoffs in the three mechanisms. Thus, we avoid that repeated game effects, anger or excitement over previous results influence current or future decisions.

Overall, each subject would thus submit a complete division proposal for each of the three mechanisms and a first division proposal for each of the four bargaining procedures. In total each subject would thus have to submit 8 vectors. Furthermore, we would like to ask subjects about which procedures they consider fairer than others. We would thus ask them to rank the 7 ways of dividing the dollar, i.e. the 3 mechanisms and 4 bargaining procedures, after they were explained the rules of each of them, but before they had any feedback regarding their payoff from a particular mechanism or procedure. It may be interesting to ask this question regarding procedural fairness again after subjects have played one of the selected bargaining procedures and after they received feedback from the three mechanisms, i.e. here we would ask for a ranking of four procedures only. An important question is whether this task is too demanding for subjects. We thus plan to run pilot sessions to understand if our initial design of the entire experiment is appropriate for the objectives described above.

As for the infrastructure, the University of Innsbruck is well equipped to run computerized economic experiments. There are two computer labs available with a maximum capacity of 48 subjects per session, all workstations can be separated by sliding walls to ensure anonymity in decision-making. Subjects are recruited with the help of a database that currently contains over 3,000 students with various majors who signed up for participation in economic experiments and is constantly updated.

5 References


