

Does voluntary social cooperation promote liberal egalitarian justice?

Hedvig Mendonca¹, Lida Kuang², Simon März³, Larissa Walter⁴

The following paper emerged from the interactive sessions and lectures of the second part of the Summer School, with the topic "Social Contract Lab Experiments". It took place from June 11 to June 14, 2023 and was conducted in collaboration with Prof. Bernhard Neumärker, the FRIBIS SoCoBis Team, the leader of the SoCoLab in Freiburg, Dr. Marcel Franke and Prof. Lorenzo Sacconi, Prof. Marco Faillo, Laura Marcon (PhD.) and Dr. Virginia Cecchini Manara from Italy. The policy paper is a draft of an adapted social contracting experiment that can be seen following the various lectures and workshops, in particular the presentations by Prof. Lorenzo Sacconi, Prof. Virginia Cecchini Manara, Prof. Marco Faillo, and Laura Marcon (PhD.).

1. Theory of Social Contracting

Social Contract Theory emphasises the relinquishment of inherent rights by individuals in their natural state to organised society, in exchange for protections and privileges – a deliberate exchange of liberties for civilised advantages (Riley, 2016; Weber, 2014). This foundational agreement establishes moral obligations, fostering harmonious coexistence by aligning individual rights with collective duties (Sasan, 2021). The engagement with the social contract involves two perspectives: ex-ante and ex-post. Ex-ante entails assessing the feasibility of norms and institutions, while ex-post centres on implementing agreed upon terms and ensuring alignment with the original intent and compliance (Faillo, Ottone, & Sacconi, 2015).

The empirical study by Faillo, Ottone, and Sacconi (2015) adds practicality to social contract theory, highlighting the interplay between personal

motivations, cooperation, and sustainability. Thus it underscores the real-world relevance of the theory. Social contract theories clarify the origins and legitimacy of institutions with a focus on shared consensus and unanimous agreement among the individuals involved. Compliance with this consensus requires persuasive justifications, effective incentives and intrinsic motivations (Faillo, Ottone, & Sacconi, 2015).

Social Contract Theory examines social and political order, fairness, stability, cooperation, compliance and legitimacy in well-organised societies (Jos, 2006; Weber, 2014; Sasan, 2021). Additionally, the theory emphasises the balance between rights and responsibilities derived from the social contract, ensuring fairness and respect for all citizens (Faillo, Ottone, & Sacconi, 2015; Sasan, 2021). Furthermore, the theory emphasises cooperative governance, self-enforcing agreements, consent, participation, responsiveness, trust, communication and deliberation for social cohesion and conflict resolution (Faillo, Ottone, & Sacconi, 2015; Weber, 2014).

2. Theory of Cooperation and Competition

As highlighted by Faillo, Ottone, & Sacconi (2015), several times in their essay, cooperation is a crucial factor when discussing social contracting. Especially in today's complex world, full of interdependencies, where outcomes are dependent on the actions of multiple persons' actions, it is often necessary to join forces rather than compete to achieve a desired goal.

These interdependencies also play a crucial factor in a famous explanation for cooperative behavior by Deutsch (1949). In his research, he worked out a common theme among the existing theories about cooperation up to that time, highlighting the significance of *social interdependencies*.

These can either be positive or negative and are essential in fostering or impeding cooperative behavior. Expanding on this, Johnson & Johnson (1989) further evaluated the theory of cooperation, identifying four additional important factors: positive interdependence, individual accountability, promotive interaction, social skills and group processing. These factors collectively contribute to successful and beneficial cooperative behavior.

Both prior to, and particularly following, the development of these well-known theories, numerous studies have been conducted to explore cooperation in various contexts. Many beneficial effects of cooperation have been found since. To list just a few, studies have shown a positive relationship between cooperation and health, self-esteem, problem-solving performance, learning, coordination, productivity and many other qualities. (For an overview see Johnson & Johnson, 2009 or Tjosvold & Tjosvold, 2015). Another interesting finding was that, when cooperation was prepared in advance, i.e. when people were informed about the benefits of cooperation, they did even better in a test that came after a phase of cooperative learning than when having learned individually or cooperatively but with no prior information about cooperation (Buchs, Gilles, Antonietti & Butera, 2016). Johnson and Johnson (2009) also named several factors that might limit or favour cooperative task performance. We want to highlight the fact that this could be taken into account when constructing an experiment that deals with cooperative task processing.

Cooperation is also often indirectly implied in social contracting experiments. This suggests that behaviour is cooperative when people share their money in a prisoner's dilemma experiment, for example, or in a Dictator game, which is often used in lab experiments to study social contracting, instead of clinging to the money (e.g. Kiesler, Sproull & Waters, 1996; Vlerick, 2019). Nevertheless, to our knowledge, very few social contracting experimental laboratory studies directly implemented cooperative task processing as a central variable of interest. This is why we

came up with an idea for an experiment that might be able to close this gap below.

3. Experimental design

The experiment is designed to investigate whether voluntary social cooperation promotes liberal egalitarian justice or not. As an extension of work focuses on the production of a common output (Degli Antoni et al. 2022), our work will examine the impact of supplementing the voluntary cooperation on production means.

The experimental framework will generally follow the methodology used in the original paper (Degli Antoni et al. 2022). All treatments in the experiment will be placed in the 'chat' scenario. Furthermore, an 'ex-ante agreement' phase was introduced before the task, allowing participants to agree on a division rule. They will be paired up and asked to perform a task where one member is given 6 minutes and the other 10 minutes to complete it. This variation in time allocation created/s a random distribution of production means. The payoff of the experiment will be based on the output of the task. After the task subjects will be required to divide the earnings between themselves, choosing from five predefined 'division rules.' (There were five division rules as follows: "Equal split": Both subjects receive half of the total output; "One gets all": One subject takes the entire output; "One gets what she has produced": Subjects receive what they individually produced; "Time independent division": The production from the first 6 minutes is divided equally, and the last 4 minutes' output from the 10-minute subject is shared evenly; "Divide according to productivity": Payoff ratio is based on the productivity ratio between two subjects.)

In order to align with the experimental purpose more effectively, the task of encoding words in the original experiment will be substituted by an engaging balloon-popping game. (Peng and Hsieh 2012). The game requires players to click the mouse to pop balloons displayed on the screen within a time limit, with the goal of obtaining the highest score. One notable advantage of this game is its extensive customisation options,

allowing it to be tailored for a variety of situations. It can be played individually, in cooperation, or where we need to make it suitable for tasks that require recurring patterns. In such instances, we can also utilise specific conditions as threshold values for harmonising elements (or twice the individual point scale).

Besides, in addition to providing participants with the income they can generate in the game, they will be awarded with a chance to participate in a lucky draw for a 100 Euro Amazon card: as long as their production reaches a certain level (at the current stage of experimental design, we're not able to provide an accurate numerical value here but it can definitely be reasonably estimated before the experiment), and this level is easier to achieve through cooperation.

The treatment can be divided into three phases: a practice phase, a task phase and a division phase. To investigate whether voluntary cooperation can trigger or emphasise the preference for a liberal egalitarian redress principle under the veil of ignorance, as mentioned in the previous paragraph, this experiment will set all treatments under the chat scenario formulated in the original paper and allow participants to reach an agreement on a division rule before the experiment begins. In this context, the following treatments will be conducted:

3.1 The balloon game needs to be played individually

In this baseline treatment, where participants are required to play the balloon popping game by themselves. Within ten minutes, each successfully popped balloon will be counted as production and can be converted into one euro cent at the end of the game. After ten minutes, depending on the participants' choices regarding the division rule, whether a participant can receive a chance to participate in the lucky draw will be calculated separately. This means that, even if there are two participants from the same group of the game, there is no guarantee that they will both be able to get a chance to enter the lucky draw.

3.2 The balloon game needs to be played in cooperation

During the first six minutes, each balloon on the screen needs to be clicked twice by both players using the mouse. In contrast to the previous treatment, a balloon hit by both participants will now be counted as two balloons. Balloons that are not clicked by both people will not be counted. To communicate this change to participants, we can use colour changes in the design of the balloons. For example, before being hit, a balloon can be red but after being hit once it will turn blue.

After six minutes, participants assigned to the 10-minute time slot need to complete the game within the remaining four minutes. During this time, each balloon only needs to be clicked once.

In terms of output, the participants will need to make the decision on the division rule based on their own output, but the chance to participate in the lucky draw will be determined by group performance. If the set goal is achieved collectively by both participants, their names will be entered separately into a pool for consideration in the lucky draw.

3.3 The participants are free to choose in an ex-ante phase if they would like to cooperate.

In this treatment, we will ask participants to reach a further agreement on whether they prefer to play the game cooperatively or individually prior to the start of the game (before being presented with the division rule). Participants will be introduced to the rules of individual and cooperative games. The game will then continue in the same manner as the previous two treatments.

The setting of the veil of ignorance can be very useful to detect the preference for LE redress principle. The original paper focuses on analysing two issues in the experimental data: the choice of participants and their compliance. Experimental results showed that LE was preferred in the ex-ante agreement and its ex-post compliance was high. The data from this experiment will be further analysed to determine whether social

cooperation will have an impact on the choice of LE principle and its specific compliance circumstance. We would like to check the following hypothesis:

3.3.1 In the ex-ante choice, social cooperation enhances liberal egalitarian justice

The fairness embodied in the LE redress principle lies in its neutralisation of unequal distribution of production means (Degli Antoni et al. 2022). It is most favoured in experiments that do not require collaboration reach completion. Therefore, using the same theory, it can be hypothesised that, compared to situations where participants complete tasks alone, the cooperation will lean towards a fairer perspective of division.

3.3.2 They generally comply with the rule under cooperation

It is assumed that the 'sense of justice' would motivate participants to comply with their agreed choice.

4. Real-life implication and Outlook

Cooperation games, as a branch of game theory, have many real-life applications which indicates their importance, but also the fruitfulness of further research. In economics, cooperative games help to further understand the interactions of firms with each other in terms of price setting, joint ventures, R&D etc. A shift towards more cooperative interactions with a liberal egalitarian distribution of gains could be lead to significant changes in cooperative market behavior. Some of these may be quite unwarranted as they may increase the likelihood of cartel-like behaviour. However, more cooperative behaviour may, on the other hand, create many positive advances in the fields of resource allocation, international relations conflict management, environmental issues and group dynamics in general. More cooperation, coupled with a liberal egalitarian redistribution in the case of unequal initial endowments, has the potential to significantly lower the conflict potential of many of the central and potentially conflict-laden interactions in the above-mentioned areas.

We live in a world where questions of social justice and the way we deal with conflict are on the forefront of daily politics. Rather than being locked in eternal conflict heightened cooperation may be a way forward. Looking at current political events, the change to a significant increase of (social) cooperation trumping (social) competition seem increasing unlikely. Yet despite this, considering all the many gains that cooperation may hold for both sides, this alone makes any effort and research towards a heightened cooperation in society all the more worthwhile.

¹**Hedvig Mendonca**, MA, Lecturer, University of Namibia.

²**Lida Kuang** is a doctoral student in economics at FRIBIS, UFR.

³**Simon März** is a doctoral student in economics at FRIBIS, UFR.

⁴**Larissa Walter** is a doctoral student in psychology at FRIBIS, UFR.

Literatur

- Butera, F., Buchs, C. (2023). Soziale Interdependenz und die Förderung kooperativen Lernens. In: Sassenberg, K., Vliek, M.L. (eds) Sozialpsychologie: Von der Theorie zur Anwendung. Springer, Cham. https://doi.org/10.1007/978-3-031-17529-9_8
- Buchs, C., Gilles, I., Antonietti, J. P., & Butera, F. (2016). Why students need to be prepared to cooperate: A cooperative nudge in statistics learning at university. *Educational Psychology*, 36, 956 – 974. <https://doi.org/10.1080/01443410.2015.1075963>
- Degli Antoni, Giacomo, Marco Faillo, Pedro Francés-Gómez, and Lorenzo Sacconi. (2022). “Liberal Egalitarian Justice in the Distribution of a Common Output. Experimental Evidence and Implications for Effective Institution Design. *Journal of Institutional Economics*, 18, 901 – 918. doi:10.1017/S1744137422000029
- Deutsch, M. (1949). A theory of cooperation and competition. *Human Relations*, 2, 129–152.
- Faillo, M., Ottone, S., & Sacconi, L. (2015). The social contract in the laboratory. An experimental analysis of self-enforcing impartial agreements. *Public Choice*, 163, 225-246.
- Faillo, M., Marcon, L., & Francés-Gómez, P. (2020). Distributive Justice in the Lab: Testing the Binding Role of Agreement. *Analyse & Kritik*, 42(1), 107-136. <https://doi.org/10.1515/auk-2020-0005>
- Johnson, D. W., & Johnson, R. T. (1989). *Cooperation and competition: Theory and research*. Interaction Book Company.
- Johnson, D. W., & Johnson, R. T. (2009). An Educational Psychology Success Story: Social Interdependence Theory and Cooperative Learning. *Educational Researcher*, 38, 365-379. <https://doi.org/10.3102/0013189X09339057>
- Jos, P. H. (2006). Social Contract Theory: Implications for Professional Ethics. *The American Review of Public Administration*, 36(2), 139–155. <https://doi.org/10.1177/0275074005282860>
- Kiesler, S., Sproull, L., & Waters, K. (1996). A prisoner's dilemma experiment on cooperation with people and human-like computers. *Journal of Personality and Social Psychology*, 70(1), 47–65. <https://doi.org/10.1037/0022-3514.70.1.47>
- Riley, P. (2006). Social contract theory and its critics. In M. Goldie & R. Wokler (Authors), *The Cambridge History of Eighteenth-Century Political Thought* (The Cambridge History of Political Thought, pp. 347-376). Cambridge: Cambridge University Press. doi:10.1017/CHOL9780521374224.014
- Sasan, J. M. V. (2021). *The Social Contract Theories of Thomas Hobbes and John Locke: Comparative Analysis*.
- Tjosvold D. & Tjosvold M (2015). *Building the Team Organization: How To Open Minds, Resolve Conflict, and Ensure Cooperation* (1st ed.). Palgrave Macmillan. <https://doi.org/10.1057/9781137479938>
- Vlerick, M. (2019). The Evolution of Social Contracts, *Journal of Social Ontology*, 5(2), 181-203. <https://doi.org/10.1515/jso-2019-0041>
- Weber, T. M. (2014). *Examining Social Contract Theory*. IUPUI Scholar Works. <https://core.ac.uk/reader/46959579>