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ODE TO THE SEA: WORKPLACE ORGANIZATIONS AND NORMS OF COOPERATION*

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The functioning and well-being of any society and organisation hinges on norms of cooperation that regulate social activities. There is no empirical evidence on how such norms emerge and in which environments they thrive remains a clear void in the literature. We compare behaviour in Brazilian fishermen societies that differ in the workplace organisation. In one society (by the sea), fishermen are forced to work in groups, whereas in the adjacent society (on a lake) fishing is inherently an individual activity. We report that the sea fishermen trust and cooperate more and have greater ability to coordinate group actions than their lake counterparts.

Throughout human history, trust, cooperation and coordination in domains such as hunting, trade and warfare were necessities for human survival. Today, such behaviour is important as ever and crucial for the well-functioning of societies and organisations. A large body of experimental evidence suggests that the extent of such behaviour goes beyond what is predicted by standard self-interest maximisation, as some individuals exhibit pro-sociality with genetically unrelated others in the absence of reputational benefits (Charness and Kuhn, 2011, and the references therein). Interestingly, the extent of such behaviour appears to differ significantly across countries and societies (Roth *et al.*, 1991; Hayashi *et al.*, 1999; Henrich *et al.*, 2001, 2005) and there is evidence suggesting that such behavioural differences correlate with economic growth (Knack and Keefer, 1997) and the quality of democracy (La Porta *et al.*, 1997).

One likely explanation for differences in trust, cooperation and coordination is based on social norms, which may have emerged as an adaption to different local pressures (Sober and Wilson, 1998; Boyd and Richerson, 2005; Durante, 2010). Social norms are patterns of behaviour that are based on shared beliefs about how individual group members should behave in a given situation. They are enforced by internal and external sanctions, such as shame or punishment, internalised through social learning and socialisation, and may lead to an enduring change in individuals' motivation, such as their propensity to act pro-socially (Durkheim, 1933; Parsons, 1937; Arrow, 1971; Fehr and Gächter, 2002). Recent experimental studies suggest social norms are influenced by societal conditions (Henrich *et al.*, 2005, 2010; Herrmann *et al.*, 2008; Gächter and Herrmann, 2011).

The workplace organisation is a crucial part of every society. One important dimension on which workplace organisations differ describes the extent to which work is done in groups. The extent of group activities, in turn, may be closely related to the emergence of norms of cooperation. In workplace organisations where individuals

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mainly work in groups, outputs typically depend more on the cooperation of group members than in workplace organisations where individuals mainly work on their own. This difference puts more pressure to act cooperatively in workplace organisations characterised by high levels of group activities and may lead to the emergence of norms of cooperation in such environments.

In this article, we overlay a set of field experiments on a natural setting to test the hypothesis that group activities affect norms of cooperation. We compare distinct traditional fishing societies that differ along one major dimension: the workplace organisation. In one society, located by the sea, fishermen need to work in groups whereas in the other society, located around a nearby lake, fishing is an individual activity. As a result, the output of the fishermen at sea depends on the team's total effort and on the cooperation of members in the same fishing boat whereas such cooperation is unnecessary at the lake. We therefore hypothesise that a stronger norm of cooperation exists at the sea where ecological constraints favour joint production activities and that this led to more interpersonal trust and a better ability to coordinate over risky activities.

We indeed find strong behavioural differences between the two fishermen societies that are consistent with our cooperation norm hypothesis. Sea fishermen trust significantly more and are also significantly more cooperative, return more money in the trust game, propose more equal offers in the ultimatum game, contribute more in the public goods game and donate more to a charity outside their own society. We also find that sea fishermen try more often to coordinate on the efficient Nash equilibrium in the stag-hunt game but are not different in their risk-taking behaviour in an investment game. These findings provide initial evidence that in our field setting norms of cooperation are significantly more pronounced in workplace organisations that rely on teamwork.

An alternative explanation for the difference between societies could be self-selection into societies/workplace organisations. We test for the role of selection by using surveys identifying which fishermen in our participant pool have selected in or out of fishing societies. We provide evidence that our society differences are robust to the exclusion of fishermen who have selected in or out of fishing villages, suggesting that self-selection is not a key driver for our behavioural results.

In addition, we report the results of experiments with women in these societies who do not fish. We do not find society differences in cooperativeness between lake and sea women who do not fish rendering it unlikely that other society differences than workplace organisations drive our findings. The absence of differences between lake and sea women also provide suggestive evidence that norms of cooperation learnt at the workplace do not spread to other society members.

Our study is related to other experiments that investigate the role of the habitat for altruism (Voors *et al.*, forthcoming), anti-social behaviour (Prediger *et al.*, 2014) and competitiveness (Leibbrandt *et al.*, 2013).[1] It is also related to Carpenter and

[1] In Leibbrandt *et al.* (2013), we study fishermen and other society members from the same villages and their competitiveness in two experimental tasks (one of the two tasks was conducted together with the other tasks described in this study). We observe that fishermen at the lake are more willing to compete individually (but not in teams) than at sea and that this difference emerges with work experience.

Seki (2006, 2011) and Castillo *et al.* (2011), which study fishermen in social dilemma experiments. Carpenter and Seki (2006) investigate a Japanese fishing community and differences in cooperativeness depending on whether community members are fishermen and, if they are, whether they pool their catch. One important difference between their study and ours is that their fishermen do not differ to the extent to which they work in groups, whereas our fishermen come from societies where the workplace organisation is such that individuals systematically either work alone or in groups. Our study also uses validated economic experiments. Fehr and Leibbrandt (2011) show that the economic experiments employed in this study significantly predict fishermen's actual cooperation behaviour in the field. Thus, our findings suggest that workplace organisations can significantly affect cooperation in everyday life.

Since our findings suggest that socio-ecological factors play a decisive role in the proliferation of cooperation norms it may help to explain the scale and variance of cooperation in different societies reported in other studies (Roth *et al.*, 1991; Hayashi *et al.*, 1999; Henrich *et al.*, 2001; Buchan and Croson, 2004; Fehr *et al.*, 2008; Herrmann *et al.*, 2008). Relatedly, our study may provide evidence in favour of endogenous preference formation (Bowles, 1998) because our findings corroborate the idea that economic institutions form preferences to cooperate. We find that individuals who work in teams and need to suppress free-riding in their teams to secure their livelihoods are more cooperative in cooperation tasks unrelated to their workplace than individuals who work on their own. Ruling out selection, this suggests that the workplace organisation has caused individuals to learn and internalise a norm of cooperation that guides their behaviour in different environments.

These findings may also inform evolutionary models postulating that pro-social behaviour can proliferate in certain social environments (Boyd and Richerson, 1985; Gintis, 2003). These models are based on the idea that cultural evolutionary processes can yield norms of cooperation that suppress free-riding in groups and thus emphasise the importance of group selection. In our field setting, cooperation at work is crucial for the sea fishermen but not for the lake fishermen. More precisely, cooperation in boats at sea is likely to increase the income from fishing and the surplus goes to the boat members; thus selection at the group level favours cooperation. However, the fact that such cooperation is still costly at the individual level and the suggestive findings that norms of cooperation at the sea do not spread to other society members posit challenges for evolutionary stability.

1. Field Setting

We selected small traditional fishing societies at the sea and at a lake in Brazil, which share many characteristics but use systematically different workplace organisations. The main difference between these two societies is that at the sea fishermen work in groups, whereas fishing is an individual activity in the other society at a nearby lake.[2] As

[2] One important society characteristic that is linked to pro-sociality is the level of market integration (Henrich *et al.*, 2010). We have no reason to believe that market integration is significantly different between societies.

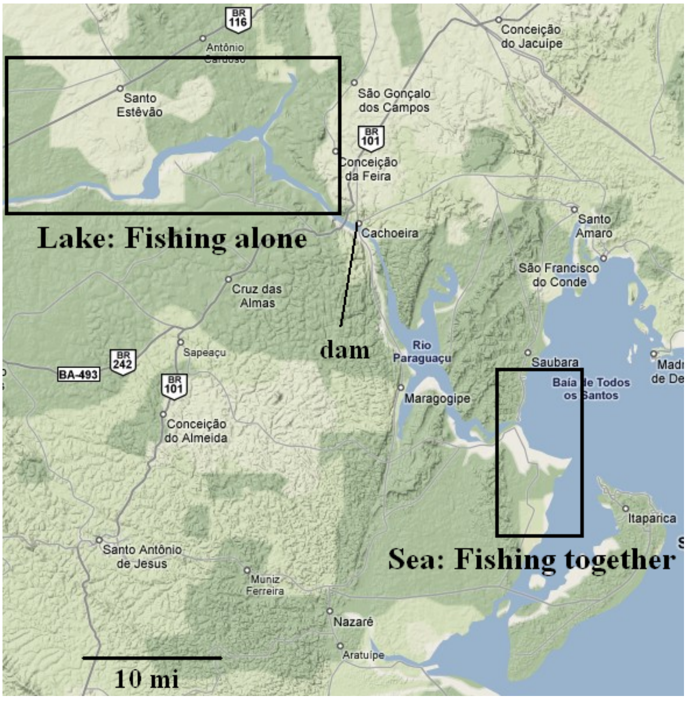

Fig. 1. *Field Setting*

Notes. Our study was conducted in north-eastern Brazil in different societies in close proximity and in which fishing is the main and often only source of income. The societies are connected by a river, only divided by a dam, and the society at the sea is at the estuary mouth of this river. At the lake fishermen go fishing alone whereas at the sea they go fishing in teams.

Figure 1 makes clear, the lake is connected to the sea by a river, only divided by a dam. The societies are in close geographical proximity and the straight-line distance between the lake and sea is approximately 50 kilometres, which corresponds to the distance between the west and the east side of the lake.

Most of our participants grew up in their village and have stayed there for decades, 48% were born in their village, approximately two-thirds report to have lived in the same village since age 12 and, on average, participants have lived for 28.1 years in their village. While there is some migration into and out of these villages (Section 5), we find no evidence for migration between the two settings despite the geographical proximity – that is, fishermen do not select whether they work in groups or alone. We did not meet a single fisherman who moved from one setting to the other or went fishing in both settings. In fact, very few fishermen have even visited the other field setting. Note that travelling from one setting to the other is difficult and time-consuming.

The societies use different technologies to catch fish as a response to different ecological constraints. Fishermen at our lake setting use fishing instruments that can be handled by one person, and therefore it is not efficient to fish in teams. Probably because there is no need for more than one person fishing, the fishermen at the lake also use small boats that render it impossible to take more than one person with them.[3] At the sea setting, in contrast, the use of small boats and light fishing instruments is inefficient and dangerous due to the sea ecology.[4] The difficult conditions at the sea caused by waves and currents in combination with the different fish stock (typically larger and heavier fish than at the lake) imply that fishermen use heaver and longer fishing instruments that can only be handled by more than one person and, therefore, they also use larger fishing boats. They work in groups of two (27.5%), three (35.3%), or four to eight individuals (37.2%) and usually with the same group members. Thus, while fishermen at the lake spend much of their work time on their own, fishermen at the sea are together with their group members.

The different technologies used to catch fish not only systematically shape workplace organisations but also imply differences in the need to cooperate and coordinate between societies. While fishing together at the sea, many of the activities produce incentives to a free-ride on other group members' effort. One important time-consuming and strenuous activity is to set and collect the fishnets. As the fishnets are large and heavy, fishermen need to pull the fishnets out of the sea jointly and simultaneously to collect the catch. However, if effort is costly and since individual effort is not easily identifiable, there might be incentives to provide the lowest effort acceptable. As low effort levels imply less income from fishing (as the collecting of fishnets would take more time and thus there would be less time available to set the fishnets again with the prospect of catching more fish), one may expect the development of social norms that mitigate free-riding as an adaption to these local pressures to cooperate and coordinate at the sea. In contrast, at the lake the technologies are such that the work environment does not require such safeguards.

In both societies, fishermen work the whole year and for five to seven days a week. They are heavily dependent on the fish resources: there are almost no other types of jobs and fishing is often the only possible profession to provide the fishermen and their families with income and nutrition (a summary of relevant variables on site level is presented in Table A1 in the Appendix). While there is variance in fishing incomes (mean = 242.6 Brazilian Reais, SD = 183.0), there is no significant difference across societies (lake = 246.2, sea = 235.1, p = 0.876, Mann–Whitney test, n = 312). Fishermen in both societies are also generally poor and have few private possessions.

2. Experimental Design

Fishermen from both societies took part in several economic experiments with large monetary incentives (average earnings were substantially higher than two average daily incomes). The experiments were conducted in similar environments. The recruitment of the fishermen was done with the help of local leaders who announced the experiment in advance. Participants were promised a show up fee of five Brazilian Reais

[3] They sometimes take their wife or children along to go fishing with them. However, very few fishermen go fishing with non-family members and, if they do, it is typically not on a regular basis.

[4] Fishing in this region is also legally prohibited unless one obtains a special permit that is very costly and hardly any fishermen possess this permit.

(1 Real = 0.61 US$)[5] but were not told about the prospect of earning additional money. We conducted the experiments in a central place, typically in a local school or public building. The experiments and surveys were conducted with each fisherman individually in a way that secured that participants could not observe the behaviour or listen to the responses of other participants.

At the beginning of the experiments, all participants received a code to ensure anonymity. In all experimental sessions, an experimenter explained the experiments individually to the participants. Before the experiments were played, a short survey was administered to collect socio-economic data. No written instructions were used because many participants were illiterate. The experimenters spent approximately 45–60 minutes per participant explaining the experiments and administering the survey. The experimenters were local students with experience in conducting interviews.[6]

As experimental currency we used points. One point equalled one Brazilian Real. Participants were not informed of their earnings until the end of the experimental session, when they were paid privately. All experiments were played only once and anonymously, that is, no participant knew the identity of his assigned partners in any of the games. We had a total of 321 participants (219 from the lake and 102 from the sea). The participants came from eight sites at the lake (participants in sessions: $N = 17$, 19, 19, 34, 15, 28, 29 and 30) and three sites at the sea (participants in sessions: $N = 20$, 42 and 40).

Fishermen at the lake took part in two experimental sessions, one conducted in the spring of 2008, and the other in the autumn of 2008. In the autumn sessions, 151 fishermen took part in a trust game (76 in the role of the trustor) and an ultimatum game. Both games were paid at the end of the session, 128 of these 151 fishermen also took part in the spring sessions. In the spring sessions, 191 fishermen took part in a donation game, lottery game, public goods game, coordination game and competition game (Leibbrandt *et al.*, 2013). The experiments were always conducted in this order and no feedback was given throughout the experiment. To avoid income effects, only two of the five experiments were paid out. The participants drew two cards from a set of five cards after they played all five games to determine which games would be counted towards payment at the end of the session.

One hundred and two fishermen at the sea participated in the same seven experiments but they were conducted in one experimental session in the autumn of 2008. Sea fishermen first took part in a trust and ultimatum game (both paid out at the end of the whole experimental session). After they finished the first two games, they were told that there would be five additional experiments before the meeting ends (donation game, lottery game, public goods game, coordination game and competition game; always conducted in this order, two of the five games were paid out). There was only one session per site. Besides this difference, all other features of the experimental procedure were identical at the sea and lake sites.

[5] The Brazilian currency is called Real (pl. Reais). Exchange rate from 1 September 2008. The mean monthly income from fishing is 242.6 Reais. Harrison and List (2004) denote our experiment as an artefactual field experiment, whereas Charness *et al.* (2013) call it an extra-laboratory experiment. The data are available online.

[6] We had five experimenters in total. Four experimenters conducted experiments in both societies.

In the following, we present in more detail the experiments that we conducted in our fishing societies. The complete set of instructions is reproduced in Appendix B.

The trust game (Berg *et al.*, 1995) provides a measure of trust and trustworthiness, two key elements for achieving efficient social exchange. In this game, we randomly assigned participants to the role of trustor or trustee. Both player types received an endowment of five points. In the first stage of the game, the trustor chose how many of these five points to send to the trustee. The experimenter tripled each point sent. In the second stage, the trustee decided how many points to return. To maximise information gathered, we implemented the strategy method for the trustees, that is, they chose how many points they would like to send back conditional on each possible transfer level.

In the ultimatum game (Güth *et al.*, 1982), participants were assigned the role of proposers or responders. Participants assigned as trustor in the trust game, were always in the role of the responder in the ultimatum game and trustees always in the role of the proposer. The proposer received an endowment of ten points and had to decide how to divide this amount between him and the responder. The responder then had to determine the minimal acceptable offer (MAO, 0 to 5 points; before knowing the actual offer). If the actual offer was below the MAO, both players received zero points, otherwise the proposed share was implemented.

In the donation game (Eckel and Grossman, 1996), we measure pro-social behaviour towards individuals outside the participants' societies. All participants received ten points and then had to decide how many of these points they like to donate to an orphanage outside their own society.

In the public goods game, all participants were assigned to groups of three and had to decide how many of their ten points they want to contribute to a group account. Each point contributed increased the group members' and their own payoff by 0.5 points. With this parameter, contributions to the public good reduce own profits but increase total group profits.

Unlike the back-transfer decisions in the trust game, the contribution decisions in the public goods game, the offers in the ultimatum game and the donations in the donation game were blind to the experimenters on site who turned their backs when participants made their decisions and transferred points between two envelopes marked with codes that they placed in boxes (see instructions in the Appendix B).

The stag-hunt game is a simultaneous-move coordination game in which two participants could either choose to 'hunt a stag' or 'hunt a hare'. If both choose to hunt a stag, each gets 10 points but if one chooses a to hunt a stag while the other chooses to hunt a hare, the one choosing the stag earns zero points. If one chooses to hunt a hare, his payoffs are seven points regardless of the other participant's decision. Thus, the game models a conflict between safety and cooperation with two Nash equilibria (if both players choose the hare or both choose the stag) but only one of which is Pareto-efficient (both players choose the stag).

The participants also took part in an investment game (Gneezy and Potters, 1997). In this experiment, participants had to decide how many out of 10 points they invest in a lottery with a payoff of 2.5 times the invested amount and a winning probability of 50%. This lottery was implemented in a simple manner with the help of a coin flip. While this simple experiment provides a relatively limited characterisation of risk preferences, it is useful to investigate whether levels of risk-aversion differ across societies and whether such potential differences drive the societal differences in the trust and coordination experiment where choices involve risks.

3. Results

Table 1 provides an overview of mean behaviour at the lake and at the sea in our experiments. We observe significant differences in five of the six experiments.

3.1. *Fishing Together and Trust*

Table 1 and Figure 2(*a*) illustrate the large and significant differences in individual trust between the lake and sea societies. Fishermen at the sea send a mean of 2 points (40% of their endowment) to the trustees, while fishermen at the lake send a mean of only 1.43 points (28.7%; $Z = 2.946$, $p = 0.003$, Mann–Whitney *U*-test, $n = 131$). While there are overall relatively few participants who trust more than two points, we observe that 51.3% of the fishermen at the lake send no more than one point, whereas the respective number is only 23.6% for the fishermen at the sea. Table A2 in Appendix A provides an overview of mean behaviour on site level and shows that in all but one small site at the lake, the mean trust is higher in all three sites at the sea than in the other seven sites at the lake.

The trust gap between our field settings is robust to the inclusion of control variables. In all of our regressions, we control for age, education, income and gender. In addition, for trust, we control for risk-aversion measured in the investment game.

Table 1
Fishermen's Behaviour at Lake and Sea

	Mean percentage		
	Lake	Sea	p-value
Trust game			
Trust	28.7	40	0.003
Trustworthiness	32.6	43.5	< 0.001
Ultimatum game			
Offer	27.9	39.8	< 0.001
Minimal acceptable offer	14	12.9	0.841
Donation game			
Donation	38.3	45.7	< 0.001
Public goods game			
Contributions	35.4	41.8	0.033
Coordination game			
Chooses efficient equilibrium	31.9	50	0.003
Risk-aversion game			
Risked share	30.3	34.8	0.155

Notes. We report values from a two-sided Mann–Whitney Test for all but the coordination game where we use a two-sided F-test. Trustworthiness: the numbers indicate the returned points divided by the received points. Observations for Trust and Minimal acceptable Offer (lake = 76/sea = 55); Trustworthiness and Offer (75/47); Donation, Coordination, Risk-aversion Game (191/98), Public Goods Game (174/98).

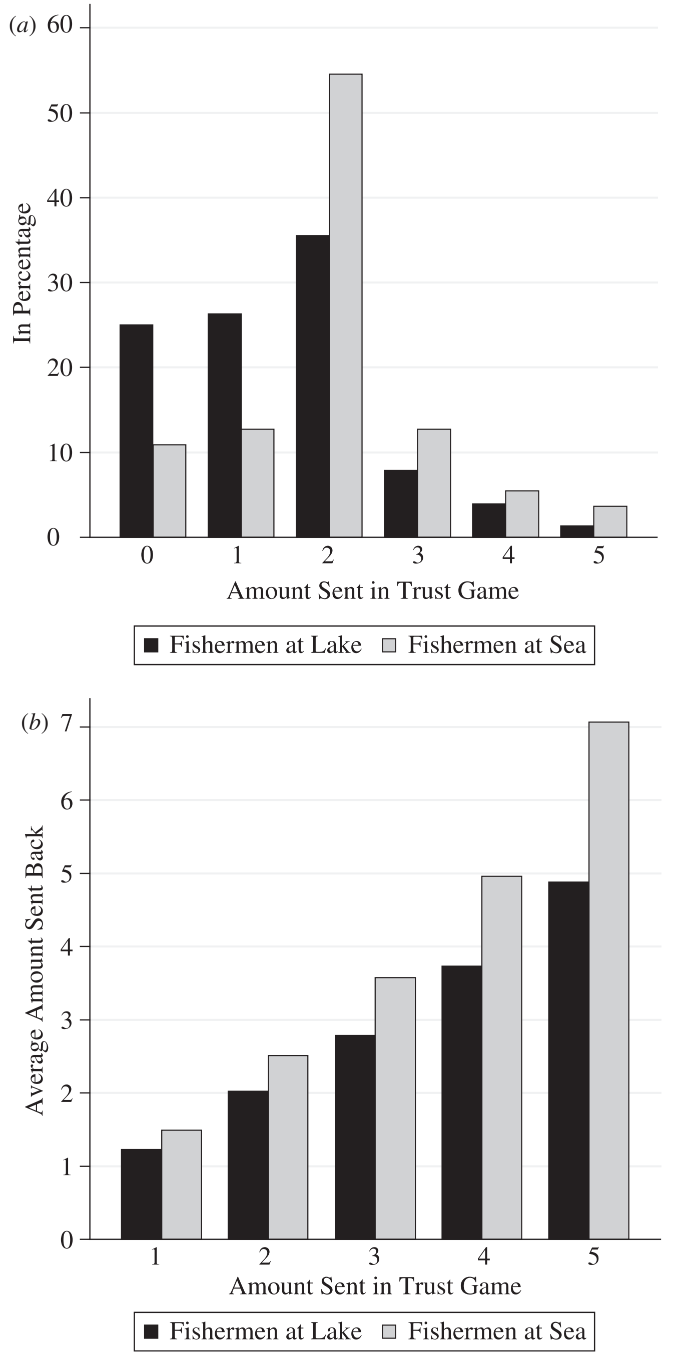

Fig. 2. *(a) Trust at Lake and Sea. (b) Trustworthiness at Lake and Sea*

Notes. (*a*) The black bars show the points sent of the trustees in the trust game at the lake, the grey bars the points sent of the trustees at the sea. (*b*) The black bars show the back-transfers of the trustors in the trust game at the lake, the grey bars the back-transfers of the trustors at the sea conditional on each amount sent (horizontal axis).

We find that the sea dummy in Table 1, column 1 (0 = for fishermen at lake, 1 = for fishermen at sea) is significant at p = 0.024 and that the trust measure is 0.573 points higher at the sea. None of the control variables is significant at conventional levels.

3.2. *Fishing Together and Cooperativeness*

Our battery of experiments allows us to investigate cooperativeness from different angles: trustworthiness (subsection 3.2.1), ultimatum game bargaining (subsection 3.2.2), donations for a charitable purpose to society outsiders and contributions to a public good (subsection 3.2.3). Studying cooperativeness in four different games has also the advantage that we can get a better idea whether society differences in cooperativeness depend on a certain game frame that reflects daily life in each society (Henrich *et al.*, 2005) or are robust to different game frames. At the end of this Section, we combine these different measures to present one unique measure for cooperativeness (subsection 3.2.4).

3.2.1. *Trustworthiness*

There are large and significant differences in the level of trustworthiness between our two societies. In the trust game, lake fishermen return 32.6% of the amount they received after the experimenter tripled the sent amount, resulting in an expected payoff of 0.977 per point sent. In contrast, sea fishermen return 43.5%, resulting in expected payoff of 1.3 points per point sent (Mann–Whitney U-test, $Z = 3.463$, p = 0.0005). Figure 2(*b*) presents the mean trustworthiness for all possible transfer levels. The mean trustworthiness is higher at sea than at the lake for all possible transfer levels. The differences are significant at $p < 0.0022$ for all transfers larger than two, and significant at p = 0.061 for a transfer of two points, and at p = 0.101 for a transfer of one point (all p-values are from Mann–Whitney U-tests).

3.2.2. *Ultimatum game bargaining*

As shown in Table 1, sea fishermen offer on average a higher share (39.8%) than lake fishermen (27.9%; $Z = 3.712$, Mann–Whitney test, p = 0.0002). Figure 3(*a*) provides a more detailed description of the distribution of offers. The grey bars for the fishermen at the sea show that only very few participants choose to offer zero or one point of the ten points to split (4.3%), whereas more than one-quarter of the lake fishermen choose such unequal offers (26.7%). In contrast, only 13.3% of the fishermen at the lake propose to split the ten points equally compared to 27.7% of the fishermen at the sea.

On the side of the responder in the ultimatum game, we observe no significant differences in the MAOs ($Z = 0.201$, Mann–Whitney test, p = 0.841). Interestingly, almost half of our participants accept zero offers and few participants accept only offers larger than 10%, that is, one point (22% at sea, 24% lake). Figure 3(*b*) presents the distribution of MAOs at the lake and sea societies. The average MAO is 13.5% (12.9% at sea, 13.9% lake), which is considerably lower than typically observed MAO's in other settings but not unusual for South American settings (Oosterbeek *et al.*, 2004; Henrich *et al.*, 2006).

After the experimental sessions, we asked sea and lake fishermen informally why they do not reject low offers. In addition, we asked proposers in the ultimatum game about their hypothetical willingness to reject unfair offers. Both, the discussions with the

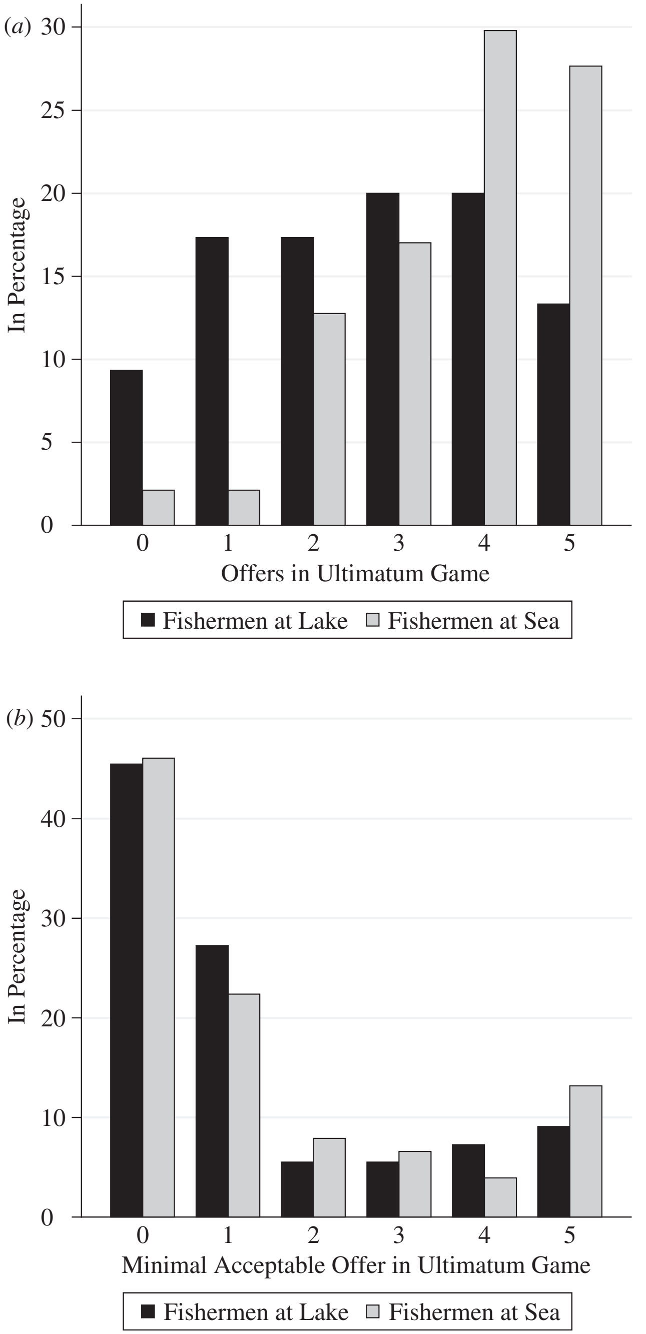

Fig. 3. *(a) Offers in Ultimatum Game at Lake and Sea. (b) Minimal Acceptable Offers in Ultimatum Game at Lake and Sea*

Notes. (*a*) The black bars show the offers of the proposers at the lake, the grey bars the offers of the proposers at the sea. The maximal offer was 5. (*b*) The black bars show the choices of the responders at the lake, the grey bars the choices of the responders at the sea. The maximal offer was 5.

fishermen and the reported hypothetical willingness provide ideas as to why MAOs are generally low and why there is no society difference in the willingness to punish unfair offers. The informal discussions with sea fishermen suggest that they shy away from rejecting low offers because they believe that participants have good reasons to propose low offers (e.g. costs for medication) and thus do not want to reject. In contrast, many lake fishermen express that low offers are not condemnable and that they clearly prefer to receive a small share over getting nothing when rejecting an unfair offer. When asking proposers about their MAO imagining they were in the position of the responder we do fnd society differences as expected and that the hypothetical MAO is higher for sea than for lake fishermen (1.83 *versus* 1.27 points; $z = 1.79$, $p = 0.07$). Moreover, if we use the hypothetical MAO of the proposer instead of the responder as the dependent variable in our regression model, we find that the difference is significant at $p = 0.027$. The stated (but not revealed) society difference in MAO's suggests that sea fishermen would be more willing to reject low offers if they had access to information about the use of earnings in the ultimatum game.

3.2.3. *Charitable donations and public goods contributions*

In the donation experiment, we find that sea fishermen donate a larger amount to an orphanage (45.7% of their endowment) than lake fishermen (38.3%; $Z = 2.59$, Mann–Whitney test, $p < 0.001$), that is, they are more pro-social towards individuals outside their own society (see Figure 4 for the distributions of donations in lake and sea

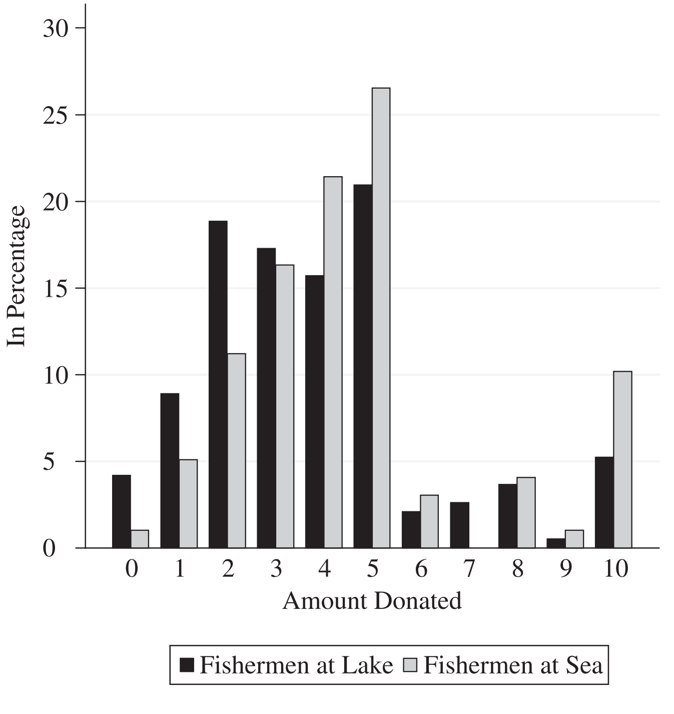

Fig. 4. *Donations at Lake and Sea*

Note. The black bars show the donations in the charity experiment at the lake, the grey bars the donations at the sea.

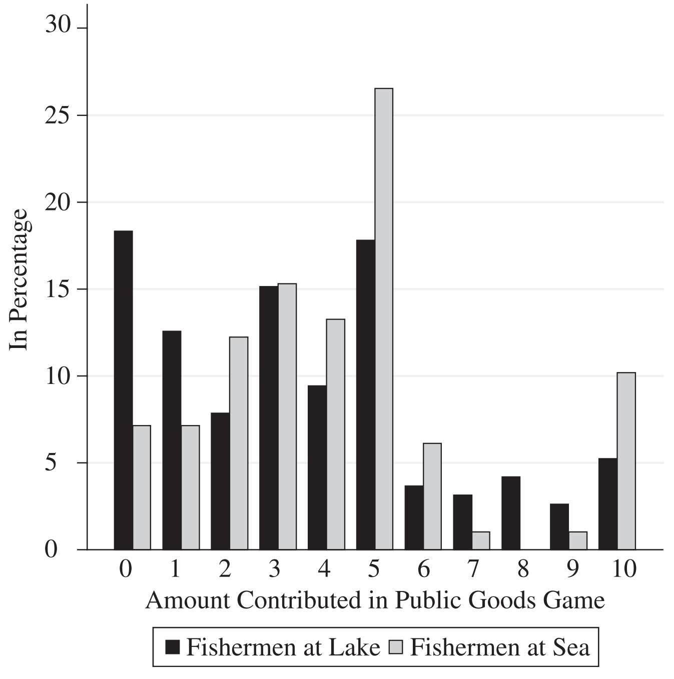

Fig. 5. *Public Good Contributions at Lake and Sea*
Note. The black bars show the contributions in the public goods game at the lake, the grey bars the contributions at the sea.

societies). Only 17.3% of the sea fishermen donate less than three points (out of ten) compared to 31.9% of the lake fishermen.

Sea fishermen are also more pro-social towards other fishermen in their own society in the public goods game. We observe that sea fishermen contribute on average 41.8% of their endowment whereas lake fishermen contribute only 35.4% ($z = 1.98$, Mann–Whitney test, $p = 0.033$). Only 7.1% of the sea fishermen do not contribute at all in the public goods game as compared to 18.4% of the lake fishermen. The contributions in the public goods game are presented in Figure 5.

3.2.4. *Individual cooperation index*

We measure cooperativeness in trust, ultimatum, donation and public goods game and find in all four experiments more cooperativeness at the sea societies. To investigate whether the individual fisherman at the sea is more cooperative throughout the experimental session than the individual fisherman at the lake, we constructed a simplistic index for each participant composed of the behaviour in these four experiments (back-transfers in trust game for all possible levels of trust,[7] offers in ultimatum game, donations in donation game and contributions in public

[7] Participants could return 3 (6, 9, 12, 15) units if 1 (2, 3, 4, 5) unit was sent; that is, the maximal total back-transfer is 45.

goods game).[8] This index captures the percentage of the points that each participant uses for cooperative purposes in the whole experiment and thus provides an indication on the distributions of overall cooperativeness. This individual index weights the behaviour in these four experiments equally[9] and is thus defined in the following manner:

$$\text{Individual cooperation Index} = \frac{1}{4}\left(\frac{\text{total backtransfers in TG}}{45}\right) + \frac{1}{4}\left(\frac{\text{offer in UG}}{10}\right) + \frac{1}{4}\left(\frac{\text{donation in DG}}{10}\right) + \frac{1}{4}\left(\frac{\text{contribution in PGG}}{10}\right) \times 100.$$

Figure 6 provides an overview of this index in both societies. This figure highlights two important differences between our two societies. First, the dashed line is shifted to the right, which shows that the extent of cooperation is higher for fishermen at sea in the various games (lake: 35.61% *versus* sea: 43.75%, $Z = 3.616$, $p = 0.0003$). Second, we find evidence of variance differences. Interestingly, the distribution for fishermen at sea is more compressed around the 40–45% level, suggesting the existence of a norm that prescribes to share outcomes (almost) equally (Kolmogorov–Smirnov test that

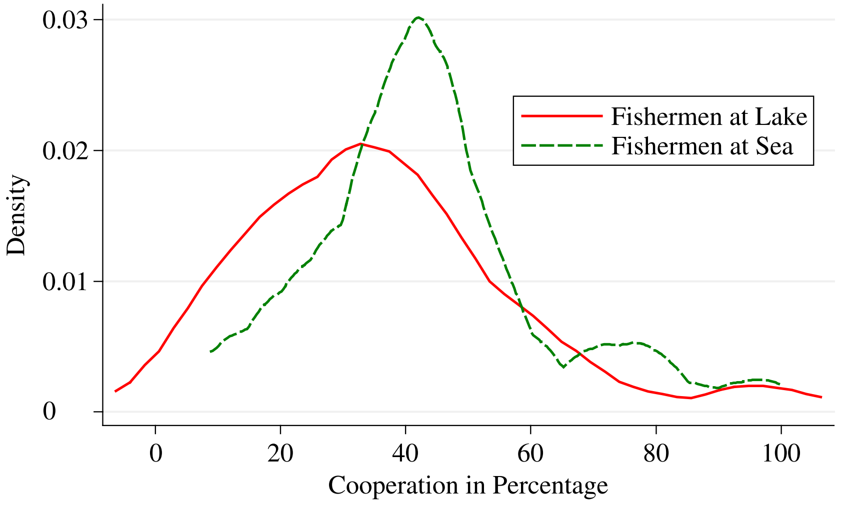

Fig. 6. *Individual Cooperation Index at Lake and Sea*

Notes. The Figure shows the Kernel density for the cooperation index in both societies. The index is composed of the behaviour in four experiments (back-transfers in trust game for all possible levels of trust, offers in ultimatum game, donations in donation game, contributions in public goods game) and defined in the main text. For participants who did not take part in all of these four games, we take the mean of the games in which they took part.

[8] While we believe that this index is a simple and straightforward index, other indexes may be equally informative. For example, one could also include the transfers in the trust game into this cooperation index or weigh the maximal total back-transfer differently. Tentative analyses suggest that the composition of the index does not play an important role.

[9] If a participant did not take part in all four experiments, the cooperation norm is composed (and equally weighted) of the three (or two, or one) experiments in which he took part.

distribution of cooperation norm between lake and sea is identical, $D = 0.241$, p = 0.001, corrected p-value). Table A2 in Appendix A shows the cooperation norm for each site.

Table 2, column 2 shows that the cooperation index is robust in our regression model. We find that the sea dummy is significant at p = 0.029 and has a coefficient of 5.91, that is, fishermen at sea have an approximately 5.9% higher score of the cooperation index.[10]

3.3. *Fishing Together and Coordination*

In the coordination game, we find that fishermen at sea choose significantly more often to hunt the stag than fishermen at the lake; that is, they more often attempt to coordinate on the efficient Nash equilibrium (sea: 50% choose stag, lake: 31.9%; Fisher's Exact test, p = 0.003). Table A2 in Appendix A provides an overview of mean coordination behaviour on the site level. The difference between the sea and the lake is robust to the inclusion of our control variables when we estimate a Probit regression model (p = 0.036, marginal effect = 12.7%). None of the control variables significantly predicts the choice in the coordination game at the 5%-level.

4. Selection

In this Section, we investigate whether selection is a likely driver behind our society differences in cooperativeness, trust and abilities to coordinate. Selection could explain our findings if we observe that fishermen with certain characteristics systematically select in or out of our lake or sea societies. More precisely, selection is a competing explanation to our workplace organisation hypothesis if we observe that at least one of the following types of selection is present in our subject pool: selection into lake societies of fishermen who are less than average cooperative, trusting and willing to coordinate; selection into sea societies of fishermen who are more than average cooperative, trusting and willing to coordinate; selection out of lake societies of fishermen who are more than average cooperative, trusting and willing to coordinate; or selection out of sea societies of fishermen who are less than average cooperative, trusting and willing to coordinate. We address the relevance of each of these four types of selection in turn in the next two subsections.

4.1. *Selection Into Societies*

We test the role of selection into societies by using surveys that reveal whether fishermen selected into their current fishing village before they started fishing professionally. We observe that 15.4% of our subject pool moved into one of our fishing villages after they have already started fishing. Selection into fishing

[10] The only significant control variable is gender. However, our findings with regard to gender have to be interpreted carefully. Less than 2% of the subjects at sea are females whereas approximately 25% of the subjects at the lake are females.

Table 2

Regression Analysis at Lake and Sea

	Trust	Cooperation index	Coordination
Sea dummy	0.573	5.909	0.127
	(0.249)	(2.688)	(0.061)
Age	0.011	0.140	0.002
	(0.008)	(0.090)	(0.002)
Education	0.025	0.849	0.008
	(0.035)	(0.535)	(0.012)
Income	0.000	0.011	0.000
	(0.000)	(0.007)	(0.000)
Male dummy	−0.404	8.547	0.138
	(0.269)	(2.489)	(0.082)
Risk aversion	0.022		−0.001
	(0.045)		(0.012)
Constant	1.469	9.556	
	(0.557)	(5.746)	
R^2	0.087	0.088	
Pseudo R^2			0.034
N	111	287	287

Notes. OLS regression for Cooperativeness and Trust, Probit regression for Coordination. Robust standard errors in parentheses. The values for probit are expressed in marginal effects. Coordination equals one if participant tried to coordinate on efficient outcome in coordination experiment. Sea Dummy equals one if participant fishes at the sea. Risk Aversion = points invested in the risk aversion experiment. Income = monthly income in Brazilian Reais generated from fishing (self-reported). For the cooperation index there are missing observations (n = 20) due to incomplete data on risk aversion.

villages at the lake is more common (21.5%) than at the sea fishing villages, where selection is almost absent (4%) and thus highly unlikely to play a significant role.[11]

We observe that our society differences in trust, cooperativeness and abilities to coordinate are robust to the exclusion of fishermen who have selected in. Table 3 presents the analysis of Table 2 but restricts the sample to fishermen who did not select into fishing villages. As we can see there are no notable differences in the society dummy in both tables For the cooperation index, the coefficient is 5.81 and p-value is 0.053 in Table 3 and 5.91 and p = 0.029 in Table 2. For trust, the coefficient is 0.59 and the p-value is 0.034 in Table 3 and 0.57 and p = 0.024 in Table 2. For coordination, the coefficient is 0.159 and the p-value is 0.013 in Table 3 and 0.127 and p = 0.036 in Table 2.

[11] The percentage of fishermen who was selected in from non-fishing villages is likely to be much lower. We have no information where the fishermen lived before and we do not know whether they lived before in a neighbouring fishing village (a case which we expect to be very common). Thus, our variable captures selection into a specific lake/sea village and not selection into the lake/sea society. In regard to this, one likely explanation for the larger occurrence of selection in at the lake, is that there is more migration of fishermen between lake fishing villages than sea fishing villages because of the smaller geographical distance between lake villages.

Table 3

Regression Analysis at Lake and Sea Excluding Fishermen Who Have Selected Into Fishing Villages

	Trust	Cooperation index	Coordination
Sea dummy	0.590	5.810	0.159
	(0.275)	(2.992)	(0.065)
Age	0.009	0.120	0.001
	(0.009)	(0.101)	(0.003)
Education	0.027	0.670	0.008
	(0.037)	(0.562)	(0.013)
Income	0.000	0.006	0.000
	(0.001)	(0.007)	(0.000)
Male dummy	−0.533	8.900	0.103
	(0.274)	(2.743)	(0.090)
Risk aversion	0.034		0.010
	(0.046)		(0.013)
Constant	1.709	11.829	
	(0.555)	(6.255)	
R^2	0.097	0.079	
Pseudo R^2			0.04
N	97	242	242

Notes. OLS regression for Cooperativeness and Trust, Probit regression for Coordination. Robust standard errors in parentheses. The values for probit are expressed in marginal effects. Coordination equals one if participant tried to coordinate on efficient outcome in coordination experiment. Sea Dummy equals one if participant fishes at the sea. Risk Aversion = points invested in the risk aversion experiment. Income = income generated from fishing.

4.2. *Selection Out of Societies*

We test the role of selection out of societies by using surveys that show which fishermen have stopped fishing or moved out of their society within four years after the implementation of our experiments. More precisely, in July 2012, we were able to get information on selection out of fishermen in seven out of eight villages from leaders at the lake and in one out of three villages from a leader at the sea.[12] We observe that there is a considerable degree of selection out at lake fishing villages and 22.4% of our 2008 subject pool have selected out at the lake villages within four years.[13] While we have only data from one sea village, it seems that selection out is clearly lower at the sea (12.5%) and thus less likely to play a role than at the lake villages.

Table 4 presents the behaviour in our experiments for fishermen who did and did not select out of lake fishing villages. We find no significant differences across societies. Lake fishermen who selected out provide even insignificant lower offers in the ultimatum game than fishermen who did not select out (p = 0.153). The cooperation norm between fishermen who did and did not select out is very similar (35% *versus*

[12] We were unable in 2012 to collect data from one lake and one sea village. In addition, fishing at one sea village has largely ceased due to the construction of an oil platform in front of this village.

[13] According to fishermen, one important reason for the relatively high rate of selection out is a decreasing fish stock at the lake in the last few years.

Table 4

Fishermen's Behaviour at Lake Corrected for Selection Out of Societies

	Mean percentage		
	Selection out?		
	No	Yes	p-value
Trust game			
Trust	29.4	27.2	0.708
Trustworthiness	32.1	28.4	0.602
Ultimatum game			
Offer	26.7	17.8	0.153
Minimal acceptable offer	16.2	17.3	0.959
Donation game			
Donation	38.5	37.4	0.645
Public goods game			
Contributions	34.8	32.6	0.455
Coordination game			
Chooses efficient equilibrium	34.1	31.6	0.847
Risk-aversion game			
Risked share	28.5	35.9	0.103

Notes. We report values from a two-sided Mann–Whitney Test for all but the Coordination where we use a two-sided F-test. Trustworthiness: the numbers indicate the average returned points divided by the number of sent points × 100.

33.7%, $z = 1.013$, $p = 0.311$). Thus, the data speak against explanations of society differences based on selection out of villages.

Interestingly, fishermen who selected out are marginally less risk-averse ($p = 0.103$), a finding that appears to make sense as selection out is usually a risky endeavour.

Table 5 presents an analysis of the sample of villages where we could gather information on selection out. Note that this implies that our sample size at the sea drops from 98 to 38. Models *a* and *b* use the restricted set of villages and differ whether we exclude fishermen who selected out (in the *b*-models) or not (in the *a*-models). First, we observe that the coefficients between the *a* and *b*-models are very similar for the cooperation index, trust and coordination. Second, we observe that the coefficients for the cooperation index and coordination in the *b*-models are considerably larger than the corresponding coefficients reported in Table 2, which uses data from all sites. This shows that the society differences in trust, cooperativeness and abilities to coordinate are robust after controlling for the opportunity to self-select.

5. Experiments with Women in Both Societies

So far we have demonstrated that there are significant society differences in cooperativeness between lake and sea fishermen that are unlikely to be caused by selection. In this section, we investigate whether there are also society differences in

Table 5

Regression Analysis At Lake and Sea Excluding Fishermen Who Have Selected Out of Fishing Villages

Model	(*a*) Trust	(*b*) Trust	(*a*) Cooperation index	(*b*) Cooperation index	(*a*) Coordination	(*b*) Coordination
Sea dummy	0.465	0.412	7.358	7.006	0.252	0.218
	(0.320)	(0.369)	(4.137)	(4.499)	(0.080)	(0.088)
Age	0.021	0.019	0.099	0.017	0.002	0.000
	(0.010)	(0.011)	(0.104)	(0.115)	(0.003)	(0.003)
Education	0.051	0.062	0.562	0.511	0.002	0.007
	(0.039)	(0.043)	(0.595)	(0.645)	(0.014)	(0.015)
Income	0.001	0.001	0.009	0.006	0.000	0.000
	(0.001)	(0.001)	(0.007)	(0.007)	(0.000)	(0.000)
Male dummy	−0.434	−0.132	8.749	9.181	0.157	0.274
	(0.289)	(0.298)	(2.664)	(2.936)	(0.083)	(0.091)
Risk aversion	−0.014	0.007			−0.004	−0.009
	(0.053)	(0.061)			(0.014)	(0.016)
Constant	1.047	0.544	11.905	15.547		
	(0.675)	(0.704)	(6.406)	(7.306)		
R^2	0.109	0.101	0.085	0.091		
Pseudo R^2					0.075	0.097
N	79	64	210	165	210	165

Notes. Models (*a*) use the full sample from seven lake villages and one sea village. Models (*b*) use the sample from the same villages but exclude all fishermen who have selected out of their profession. OLS regression for Cooperativeness and Trust, Probit regression for Coordination. Robust standard errors in parentheses. The values for probit are expressed in marginal effects. Coordination equals one if participant tried to coordinate on efficient outcome in coordination experiment. Sea Dummy equals one if participant fishes at the sea. Risk Aversion = points invested in the risk aversion experiment. Income = income generated from fishing.

cooperativeness between women who live in lake and sea societies but do not fish, that is, they are not exposed to systematically different workplace organisations while fishing. Since women who do not fish are typically housewives (or do not follow another profession), this analysis renders it possible to test whether the observed society differences are driven by other potential society differences than workplace organisations such as parental education efforts. It also renders it possible to investigate whether a social norm of cooperation has spread to other parts of the society.

For this reason, in 2012, we invited women who do not fish from two lake and two sea villages to take part in the same donation experiment that we conducted with fishermen. We chose the donation experiment as we found a sharp society difference in donations and because it measures cooperativeness towards individuals other than the participants and thus is not subject to the composition of the participants in a given experimental session.

We do not find society differences in donations between women who do not fish. More precisely, we observe that lake women who do not fish give on average 27% of their endowment to the charity whereas sea women who do not fish give on average 24.1% ($n = 20$ *versus* $n = 34$, $z = 0.327$, $p = 0.744$). The absence of society differences in cooperativeness between women who do not fish corroborates our hypothesis that workplace organisations rather than other potential society differences promote the emergence of a social norm of cooperation because most of these differences should have also affected the women in these societies.

6. Concluding Remarks

This study investigates the underpinnings of cooperation norms and tests the hypothesis that workplaces with group activities foster their emergence. We overlay a set of field experiments in fishing societies where local natural forces determine the extent of group activities. Consistent with the social norm hypothesis, we find in several field experiments that individuals are more cooperative, trusting and coordinating if their profession is characterised by group activities.

To test this hypothesis, we chose participants that are fundamentally exposed to different workplace organisations although they have the same profession and live in similar environments. In addition, we chose a field setting in which selection into workplace organisations is uncommon, collected data on society in and outflows, controlled for selection, and conducted experiments with society members that are not exposed to the different workplace organisations, which altogether suggest that selection is not a main driver of our findings.

While we cannot altogether rule out that selection contributes to the differences observed between workplace organisations,[14] we believe that our study is useful to gain novel insights into the underpinnings of cooperation norms and their relationship to workplace organisations. One limitation of our study is that our subjects are either highly exposed to group activities (all fishermen at the sea have worked for at least two years full-time in teams) or are not at all exposed to group activities. Thus, the precise relationship between the level of exposure to group activities at the workplace and the strength of cooperation norms remains largely unclear. This presents an avenue for future research and inform managers and policy makers who consider changes in workplace organisations.

[14] Historical selection, for example, can account for the observed society differences under the assumption that significant fractions of more (less) cooperative ancestors migrated to the sea (lake) and that they passed their cooperativeness to their offspring (via parental socialisation or genes). Survey data from one of our sea villages shows low levels of historical selection at the sea (95% of the participants' parents and 79% of the participants' grandparents have lived in the same village) questioning that historical selection can completely account for the observed differences.

Appendix A. Additional Tables

Table A1

Summary for Socio-demographic Variables (Means On Site Level)

Village (L = Lake, S = Sea)	Age (Years)	Education (years in school)	Income (monthly in Reais)	Gender (1 = female, 2 = male)	Hours fishing (weekly)	Religiosity	Additional fisherman in same boat	Years living in same place	Observations
L1	37.59	3.36	404.77	1.64	31.14	1.05	–	27.02	24
L2	38.16	2.68	321.32	2.00	30.58	1.26	–	28.32	19
L3	37.21	3.23	219.00	2.00	28.55	2.00	–	30.15	21
L4	34.97	3.73	282.16	1.95	24.84	1.32	–	22.89	37
L5	38.53	3.29	177.79	1.88	17.15	1.71	–	21.47	17
L6	35.21	2.96	209.46	1.39	22.25	1.81	–	18.63	29
L7	38.41	4.25	147.96	1.82	23.74	1.54	–	27.37	42
L8	37.30	3.47	253.33	1.50	21.47	1.67	–	19.50	30
S1	39.98	3.28	226.59	2.00	25.44	1.57	1.81	35.10	42
S2	40.98	3.64	230.25	2.00	29.97	1.56	3.13	37.38	40
S3	41.50	3.95	262.25	1.90	20.29	1.25	1.80	37.45	20
Total	38.42	3.49	242.58	1.83	25.16	1.52	2.32	28.13	321

Table A2

Site Level Behaviour at Lake and Sea

Cooperation index		Trust (%)		Coordination (probability)	
Lake N = 202	Sea 99	Lake 76	Sea 55	Lake 191	Sea 98
24.5 (30)		14.2 (7)		0.13 (15)	
26.2 (20)		18.4 (14)		0.21 (19)	
33.5 (15)		30 (18)		0.29 (28)	
34.6 (29)		30 (10)		0.29 (17)	
	40.2 (40)	31 (9)		0.32 (34)	
40.4 (36)		36.4 (11)		0.33 (30)	
40.5 (19)			36.6 (12)		0.38 (40)
42.4 (19)			39 (21)	0.38 (29)	
43.3 (34)			42.6 (22)		0.45 (20)
	45.1 (39)	42.8 (7)		0.53 (19)	
	48.2 (20)	–	–		0.66 (38)

Note. Numbers in parenthesis illustrate the number of observations within the site.

Appendix B. Instructions (for Both Societies, Translated from Portuguese)

B.1. *General Instructions*

Thank you for coming to today's meeting. Please note that you are free to leave this meeting at any point of time. Today's meeting starts with several games. During the games, you will have the chance to earn money. The money you earn will be paid out at the end of the meeting. No one other than me will know what you earn today. The payment will be private. You should know that the money comes from research funds and not from our own pockets or from the pocket of politicians. Please note that there is no right or wrong in playing the games, this is not a test. During today's session you will receive a code. This ensures that everything you do – your decisions in the games and your answers in questionnaires – will remain anonymous.

B.2. *Instructions for Proposer in Ultimatum Game*

The outcome in this game will depend on your decision and the decision of another participant in this meeting. You will never know with whom you are playing and the other will not know that s/he is playing with you. Here are two envelopes. In the envelope called 'yours' are 10 points and in the envelope called 'other' are 0 points.

Your decision. You have to propose an offer of how to divide the 10 points between you and the other participant. This means you have to decide how many of these points you transfer from your envelope to the other envelope. You can transfer nothing, 1, 2, 3 up to 10 points. After you have made your decision we will ask the other participant who is playing with you if s/he accepts your offer or not. If s/he accepts, your offer will be implemented, that is, you will get the points in your envelope and the other participant the points you transferred to his/her envelope. If s/he does NOT accept your offer, both of you do not get any points in this game.

Examples. Imagine you offer 1 point to the other participant (which means you transfer 1 point to the envelope of the other) and you keep 9 points. Then, if the other participant accepts this offer, you get 9 points and s/he gets 1 point. However, if s/he rejects you will get 0 points and the other gets 0 points. Imagine you offer 5 points to the other participant (which means you transfer 5 points to the envelope of the other) and you keep 5 points. Then, if the other participant accepts this offer, you get 5 points and s/he 5 points. However, if s/he rejects, you will get 0 points and the other 0 points. Imagine you offer 3 points to the other participant (which means you transfer 3 points to the envelope of the other) and you keep 7 points. Then if the other participant accepts this offer, you get 7 points and s/he 3 points. However, if s/he rejects, you will get 0 points and the other 0 points. Imagine you offer 8 points to the other participant (which means you transfer 8 points to the envelope of the other) and you keep 2 points. Then if the other participant accepts this offer, you get 2 points and s/he gets 8 points. However, if s/he rejects, you will get 0 points and the other 0 points.

Do you understand? Remember that the outcome in this game depends on your decision over how many points you transfer and the decision of the other participant of whether he accepts your offer or not. The other participant will never know that s/he is playing with you, and you will never know with whom you are playing. Please make your decision now. I will now turn my back and you will transfer as many points you want from your envelope to the other envelope. Please do not tell me what you will do. When you are ready, let me know and please hand me the two envelopes. At the end of today's meeting you will get to know whether the other participant accepted your offer. What is your offer? Would you reject an offer of 0, 1, 2, 3, 4, 5 points?

B.3. *Instructions for Responder in Ultimatum Game*

The outcome in this game will depend on your decision and the decision of another participant in this meeting. You will never know with whom you are playing and the other will not know that s/he is playing with you. The other participant is asked to make a proposal of how to divide 10 points between her/him and you.

Your decision. Your decision is to accept or reject this proposal. If you accept, the offer of the participant will be implemented, that is, you will get the points that were offered to you and the other participant keeps the points that he wanted for himself. If you reject, the offer will not be implemented, that is, s/he will get 0 points in this game and you will get 0 points in this game. After your decision this game is over.

Examples. Imagine s/he offers 1 point to you, which means he proposes to keep 9 points for her/himself. If you accept this offer, you get 1 point and s/he 9 points. However, if you reject, you will get 0 points and the other 0 points. Imagine s/he offers 5 points to you, which means he proposes to keep 5 points for her/himself. If you accept this offer, you get 5 points and s/he 5 points. However, if you reject, you will get 0 points and the other 0 points. Imagine s/he offers 3 points to you, which means he proposes to keep 7 points for her/himself. If you accept this offer, you get 3 points and s/he 7 points. However, if you reject, you will get 0 points and the other 0 points.

Remember that the outcome in this game depends on your decision of whether you accept or not and on the offer from the other participant. The other participant will never know that s/he is playing with you and you will never know with whom you are playing. You will make your decisions now. As we do not yet know with whom you are playing, we do not know what the exact offer of the other participant was. Therefore you have to make your decision to accept or reject for all possible offers of the other participant. As soon as we know with whom you are playing, we look at the proposal of the other participant and then look into your decision about whether to accept or reject this particular offer. Do you understand?

B.4. *Instructions for Trustor in Trust Game*

The outcome in this game will depend on your decision and the decision of another participant in this meeting. You will never know with whom you are playing and the other will not know that s/he is playing with you. We will give 5 points to you and also 5 points to the other participant who is playing with you.

Your decision. Your decision is to decide how many points you send to the other participant. All points that you send will be tripled by us before being passed to the other participant. Then, the other participant will decide how many of the tripled points he sends back to you. Then this game is over. Your outcome in this game will be the points you kept (and did not send) plus the points returned to you from the other participant. The other participant will get the 5 points that we gave her/him at the start plus the points that you send to her/him minus the points s/he returned to you.

Examples. Imagine you send 3 points to the other participant. As mentioned before, we will triple these points, which means that the other participant gets 9 points. Therefore, the other participant has now 9 points plus the 5 points from the start, that is, s/he has 14 points. Then the other participant decides how many of her/his points s/he sends back. Imagine he sends back 0 points, then s/he will still have 14 points and you will have 5 − 3 = 2 points. Imagine he sends back 6 points, then s/he will still have 14 − 6 points = 8 points and you will have 5 − 3 + 6 points = 8 points. Imagine you send 0 points to the other participant. This means no points are sent, and the other participant cannot send any points back. Therefore, the game ends with you two keeping the 5 points from the beginning of the game. Another example, imagine you send all 5 points to the other participant. As mentioned before, we will triple these points, which mean that the other participant gets 15 points. Therefore, the other participant has now 15 points plus the 5 points from the start, that is, s/he has 20 points. Then, the other participant decides how many of her/his points s/he sends back. Imagine s/he sends back 10 points, then s/he will still have 10 points and you will have 5 – 5 + 10 = 10 points. Imagine he sends back 2 points, then s/he will still have 20 – 2 points = 18 points and you will have 5 – 5 + 2 points = 2 points.

Is this clear? Shall I repeat? How many of your 5 points do you want to transfer? How many points do you believe will the other participant send back?

B.5. *Instructions for Trustee in Trust Game*

The outcome in this game will depend on your decision and the decision of another participant in this meeting. You will never know with whom you are playing and the other will not know that s/he is playing with you. We will give 5 points to you and also 5 points to the other participant who is playing with you. The decision of the other participant is how many points s/he sends to you. Every point s/he sends to you is tripled by us before it gets to you. So, for instance, if s/he sends 3 points, 3 × 3 = 9 points will be added to your 5 points.

Your decision. Your decision is to decide how many points you send to the other participant. Your outcome in this game will be the 5 points that we gave to you at the start plus the points that were sent to you and tripled by us, minus the points you return to the other participant The outcome of the other participant will be the points s/he did not send plus the points you returned to her/him.

Examples. Imagine s/he sends you 5 points. As mentioned before, we will triple these points, which means that you get 15 points. Therefore, you have now 15 points plus the 5 points from the start, that is, you have 20 points. The other participant has 5 (starting amount) − 5 (the points s/he send) = 0 points. Now you decide how many points you send back. Imagine you send back 0 points, then you will still have 20 points and s/he will have 5 – 5 = 0 points. Imagine you send back 10 points, then you will still have 20 − 10 points = 10 points and s/he will have 5 – 5 + 10 points = 10 points.

Another example. Imagine s/he sends you 2 points. As mentioned before, we will triple these points, which means that you get 6 points. Therefore, you have now 6 points plus the 5 points from the start, that is, you have 11 points. The other participant has 5 (starting amount) − (the points s/he send) = 3 points. Now you decide how many points you send back. Imagine you send back 6 points, then you will still have 11 – 6 points = 5 points and s/he will have 5 – 2 + 6 points = 9 points. Imagine you send back 0 points, then you will still have 11 points and s/he will have 5 – 2 = 3 points.

Is this clear? Shall I repeat?

Remember that the outcome in this game depends on your decision of how many points you send back and on how many points were sent to you. The other participant will never know that s/he is playing with you and you will never know with whom you are playing. You will make your decisions now. As we do not yet know with whom you are playing, we do not know how many points the other participant actually transferred to you. Therefore you have to make your decision of how many points you send back to the other participant for all possible amounts of money s/he could transfer. As soon as we know with whom you are playing, we will look at the transfer of the other participant and then look into your decision of how many points you will send back given the actual transfer of the other participant, and then calculate your outcome in this game. Do you understand?

B.6. *Instructions for the Remaining Games*

We will now play 5 different games and then the meeting is over. You will be paid according to the outcome from two of the five games. But, you will only know after you played all five games which of the two games will count towards payment. After you have played all 5 games, you will draw two cards and the cards will determine which two games will be relevant for payment. This means that you should take your decisions in all five games seriously because there is a very high chance that any one game will become relevant for your payment. During the five games, we will speak of points. 1 Point is worth 1 Real in the two games that will be chosen for payment. In the other three games, the points will be not converted to Reais.

B.6.1. *Donation Experiment*

I will now give you two envelopes. In one envelope for you are 10 points, in the other are no points. Your decision is the following: you decide how many of the 10 points you take out of your envelope and transfer to the other. Each point that you transfer from your envelope to the other envelope will be donated to an orphanage. Thus, the more points you take out of your envelope, the less you have but the more points the orphanage receives. Let me give you two examples: you transfer 9 points; this means you will receive 1 point and the orphanage 9 points. Or, you transfer 3 points which means you will receive 7 points and the orphanage will get 3 points. Of course you can transfer as many of the 10 points as you want, that is, from zero to ten points.

Do you understand? While you make your decision, I will turn my back. Please do not tell me what you plan to do. Please decide now and transfer the amount of points from this envelope to the other envelope and then put the two envelopes in the box in front of you. Tell me when you are ready!

B.6.2. *Risk-aversion Experiment*

I will now give you 10 points. They are yours. If this game is one of the two games selected for payment, it would mean that you get 10 Reais. you can play with these points, however, playing is risky: you can multiply these points or lose them. This depends on this coin. You will throw this coin and choose heads or tails. If you choose heads and heads shows up, the points you decided to play with are multiplied by 2.5. If you choose heads and tails shows up, you will lose all of the points with which you decided to play. You can decide not to play or to play with 1–10 points. Let me give you an example: I decide to play with 5 points, which means that I have 5 points for certain. Then I will choose heads or tails, and afterwards I will throw the coin. If I choose heads and tails shows up, I will only receive 5 points. In contrast, if heads shows up, I will receive $5 \times 2.5 = 12.5$ points + 5 points = 17.5 points. Do you understand? How many points do you want to risk?

B.6.3. *Public Goods Experiment*

The outcome in this game depends on your decisions and the decisions of two others in this meeting. Note that you will never know who these two others are and these two others will never know that they played with you. You and the two others will have to make the same decision. Here are two envelopes. In one envelope, which is denoted your envelope, are 10 points. These points are yours. The other, which is denoted your group envelope, is empty. You decide how many of the 10 points you transfer to your group envelope. What happens if you transfer points to your group envelope? First, of course, you will have fewer points in your envelope. Second, for every point you transfer to the group envelope, we will add 0.5 points. Thus, if you transfer (e.g.) 10 points, we will add 5 points and there will be 15 points in the group envelope. If you transfer nothing, we will not add points to the group envelope. What happens to the points in the group envelope? They will be equally distributed among all participants in your group including you. So, if there are 15 points in the group envelope, you and the other two in your group get 5 points. You do not know how many points the others transfer to the group envelope. The other two participants in your group will also have to decide how many points they transfer to the group envelope before knowing the decisions of their group members.

Let me give you an example. Imagine all three participants (including you) decide to transfer no points to the group envelope. Thus, there are no points in the group envelopes and all three participants stay with their 10 points in their private envelope. Imagine now all three participants including you decide to transfer all 10 points to the group account, that is, there are $30 + 0.5 \times 30 = 45$ points in the group envelopes. We will then divide the 45 points equally and each of you will receive 15 points. One last example: imagine participant 1 gives 10 points to the group envelope, participant 2 gives 0 points to the group envelope und you give 5 points to the group envelope. We will then add 0.5 points for each point in the group envelopes, that is, there are $(10 + 0 + 5) \times 1.5 = 22.5$ points. Then we divide these points equally among the three participants so that all get 7.5 points in addition to the points they kept in their individual envelopes. So, participant 1 gets $0 + 7.5 = 7.5$ points, participant 2 $10 + 7.5 = 17.5$ points and you $5 + 7.5 = 12.5$ points. Note that participant 2 received more points than you and participant 1 because he did not transfer any points to the group envelope. In contrast, participant 1 received less because he transferred all 10 points to the group envelope.

Do you understand? While you make your decision, I will turn my back. Please do not tell me what you plan to do. Please decide now and transfer the amount of points you want from this envelope to the other and then put the two envelopes in the box in front of you. Tell me when you are ready!

B.6.4. *Coordination Experiment*

In this game you will play with one other participant from this meeting but you do not know who, and the other participant does not know that s/he plays with you. You will not know until the end of the meeting how the other participant decided in this game. Imagine you are a hunter. You and the other participant have to make the following decision: hunting a rabbit or a stag. The rabbit can be hunted individually but hunting the stag is only possible together. If you decide to hunt a rabbit you will get 7 points (= a rabbit is worth 7 points). If both of you decide to hunt a stag you will both get 10 points (= a stag is worth 20 points). However, if you decide to hunt the stag and the other participant the rabbit, you will get no points (because you cannot hunt the stag alone) and the other will get 7 points (the rabbit can be hunted alone). Likewise, if you decide to hunt the rabbit and the other the stag, you will get 7 points and the other 0 points.

Will you hunt the rabbit or the stag? What do you believe, how will the other participant decide?

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Additional Supporting Information may be found in the online version of this article:

Data S1.

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