Online Appendix

A Both binding choices with full monitoring

When both low and high effort are binding choices at $t = 0$, full monitoring means that players who have waited can observe the distribution of the low, high, and wait choices at $t = 0$. Here, in a three-player example, we explore the strategy profiles that survive iterated weak dominance, and strategy profiles that constitute subgame-perfect Nash equilibria.

Let us classify all possible information sets (for a player who has waited) into four categories: (a) at least one other player chooses e_L at $t = 0$; (b) both other players choose e_H at $t = 1$; (c) one other player waits and the remaining player chooses e_H at $t = 0$; and (d) both of the other two players wait.

Iterated Weak Dominance First, observe that all strategies that fit any of the following criteria are weakly dominated.

1. Any strategy that involves waiting and playing e_H at any information set of type (a) is weakly dominated by waiting and taking the same action at (b), (c), and (d), but playing e_L at (a).

2. Any strategy that involves waiting and playing e_L at (b) is weakly dominated by waiting and playing e_H at (c) and taking the same action at any other information set.

3. Choosing e_L at $t = 0$ is weakly dominated by waiting and choosing e_L except at (b).

Thus, any undominated strategy with waiting involves choosing e_L at (a), and choosing e_H at (b). With some abuse of notation, we can write the set of undominated strategies as $\mathcal{S}_u = \{h, wlh, whl, wll, whh\}$. Here, h denotes the strategy of choosing high at $t = 0$. The strategy wlh involves waiting, choosing e_L at (c), choosing e_H at (d), choosing e_L at (a), and choosing e_H at (b). The other strategies in $\mathcal{S}_u$ are defined similarly.

We proceed to show that any strategy $s_u \in \mathcal{S}_u$ cannot be eliminated in the first round. Note that h cannot be dominated because it is the unique best response if

the two other players both choose whl. For any $s_u \in \mathcal{S}_u \setminus \{h\}$, s_u is the unique best response if one of the two other players chooses s_u, and the other chooses a mixed strategy $ph \oplus (1-p)s_u$ with $p \in (0,1)$.

It is clear that these five strategies survive further rounds of elimination. Each of these strategies can be made a unique best response, so for none of them is there another strategy that generates the same payoffs in all contingencies. Therefore, ϵ-social preferences have no bite.

Subgame-Perfect Nash Equilibrium In the three-player game with full monitoring and in which both choices are binding at $t = 0$, it is easy to check that any strategy $s_u \in \{l, h, wlh, wll, whh\}$ constitutes a symmetric pure-strategy subgame-perfect equilibrium.

It is worth noting that the strategy profile $(s_i = whl)_{i \in \mathcal{N}}$ does not constitute a subgame-perfect equilibrium, even though it survives iterated weak dominance. That is because, for any player, if other players choose whl, then h is a strictly profitable deviation since choosing h at $t = 0$ causes other players to choose e_h at $t = 1$.

Summary We see that, in the case where both low and high are binding choices at $t = 0$, and there is full monitoring, multiple strategy profiles survive iterated weak dominance. Subgame-perfect equilibrium also fails to yield a unique prediction. Under either analysis, we cannot rule out the strategies that involve choosing low when some (or all) other players choose to wait at $t = 0$, and some other players choose e_H at $t = 0$. In any of these cases, efficient coordination cannot be achieved. This result can easily be extended to coordination game with the same commitment structure but played by more than three players.

B Experimental Instructions ("LB-B")

(Translated into English from Chinese.)

Welcome to our experiment! This is an experiment on decision making. The following instructions will help you better understand this experiment so as to make good decisions and earn a greater amount of money. Your earnings in the experiment, together with a show-up fee of RMB 5, will be paid at the end of the session.

During the experiment, please do not talk or communicate with other participants. And please put away your phones. If you have any questions or need assistance of any kind, please raise your hand, and the experimenter will come to you. Otherwise, if you fail to obey these rules of the experiment, YOU WILL BE ASKED TO LEAVE. Thank you.

At the beginning of the experiment, all the participants will be randomly divided into groups of 4 people. You will participate in 15 rounds of decisions together with the other members of that group. The points you earn in each round will depend on the decisions that you and the other group members make. Your earnings will depend on the points accumulated in all 15 rounds, with an exchange rate of 100 Points = RMB 7. Your group members will not change throughout the 15 rounds, but their identity will never be disclosed.

Each of the group members will choose between two options, 1 and 2. The following table presents the relationship between decisions made by you and your group members, as well as the points that you earn in the round.

Your points in a round depend on your own choices, as well as on the minimum choice in your group.

		Minimum choice in your group	
		1	2
Your choice	choose 1	45	n.a.
	choose 2	5	55

If you choose 1, the minimum choice in your group must be 1. In this case, you will get 45 points. If you choose 2, there will be two possible outcomes:

1) If the smallest choice in your group is 1 (that is, at least one of your group members chooses 1), then you get 5 points.

2) If the smallest choice in your group is 2 (that is, none of your group members chooses 1), then you get 55 points.

In each round, your decision-making takes place in two stages.

Stage 1: each member in your group chooses between "1" and "wait." (The option "2" is not available in Stage 1.)

If you choose "1," it will be your final decision in this round.

If you choose "wait," you will then decide between "1" and "2" in Stage 2, based on the outcomes (to be discussed below) in Stage 1.

Stage 2: if you chose "wait" in stage 1, you now decide between "1" or "2" based on whether any group member chose "1" in Stage 1. To be specific, there are two possible outcomes from Stage 1:

Outcome 1: Some of the group members chose "1" in Stage 1. You have to decide, if this outcome occurs, whether to choose "1" or "2."

Outcome 2: None of the group members chose "1" in Stage 1. Again, you have to decide, if Outcome 2 occurs, whether to choose "1" or "2."

Figure 1: Screenshot of Choice Page (after choosing "Wait")

Note that the decisions in Stage 1 and Stage 2 will be made on the same page. Hence, you will not know the realized Stage 1 outcome when making decisions for

Stage 2. Therefore, you have to make two decisions regarding the two possible outcomes (See Figure 1). Your first decision is your response to: "some of your group members chose "1" in Stage 1" (Outcome 1); and your second decision is your response to: "none of your group members chose "1" in Stage 1" (Outcome 2).

After all group members have finished their decisions for both stages and clicked "submit," the system will automatically determine whether any group member chose "1" in Stage 1. If some group members chose "1" (Outcome 1), your response to Outcome 1 will take effect, and it will be your final decision in this round. If none of your group members chose "1" in Stage 1 (Outcome 2), then your response to Outcome 2 will take effect, and it will be your final decision in this round.

Figure 2: Screenshot of Choice Page (after Choosing "1")

If you chose "1" in Stage 1, you do not need to make any decision for Stage 2, but you will have to click the "Confirm" buttons (See Figure 2). As stated above, your final decision in this round will be "1."

At the end of each round, the interface will display (1) your choice in this round; (2) whether any group member chose "1" in Stage 1; (3) the minimum choice in this round; (4) the points you earned in this round; (5) the points you have accumulated in this round.

At the end of the experiment, the payments you will receive will depend on the total points earned (100 points = RMB 7, 1 point = RMB 0.07). You will also earn a RMB 5 show-up fee. You will be able to collect the payment after all participants

in this session have finished.

C Choice Dynamics in "LB-B"

Result 1 *In "LB-B," most of the subjects choosing WLH would continue to choose this strategy even after observing someone in the group choosing L in the previous round. Meanwhile, 17 percent of the L choosers switch to WLH in the next round, which explains the increase in the rates of efficient coordination over time. However, the presence of those who choose WLL is detrimental to the convergence to the high effort outcome.*

Here, we look into the dynamics and convergence of subjects' choices in "LB-B." Contrary to the stylized observations in most weakest-link game studies, the efficient outcome in "LB-B" increases over time. Therefore, we are interested in how subjects switched among their strategies based on the history observed in the previous rounds and, in particular, whether some subjects switched from not cooperating to cooperating. We focus on three different types of histories:

- Hist 1: In the previous round, there was efficient coordination. That is, everyone chose high effort.
- Hist 2: In the previous round, there was inefficient coordination, and it was observed that someone committed to e_L in the first period. This suggests that at least one player in the group used L, and, thus, efficient coordination was not achievable in that round.
- Hist 3: In the previous round, there was inefficient coordination, and no one committed to e_L in the first period. This suggests that no one chose L and that at least one player in the group WLL (or WHL).

Table 1 illustrates subjects' responses to these three types of histories, focusing on the choices of the three undominated strategies: L, WLL, and WLH. The subjects are categorized according to their strategies in the previous round. Here, we ignore the differences between the earlier and the later rounds and look at the aggregate pattern from all the rounds from the 2nd to the 15th.

We first look at those who chose WLH in the previous round. Most of the subjects who observed the high outcome decided to stick with high effort. If they observed the low outcome due to low effort in the first period, most subjects still continued to choose WLH. With the presence of the group members who chose L, the risk from

Strategy in the Round r	WLH			L	WLL	
	Hist 1	Hist 2	Hist 3	Hist 2	Hist 2	Hist 3
N	715	58	100	176	45	74
L in $r+1$	0.6%	10.3%	29.0%	71.0%	4.4%	23.0%
WLL in $r+1$	0.3%	0.0%	6.0%	11.9%	93.3%	68.9%
WLH in $r+1$	99.2%	87.9%	65.0%	17.0%	2.2%	8.1%

Note: Hist 1 means a high outcome in the previous round. Hist 2 means a low outcome in the previous round and someone chose L. Hist 3 means a low outcome in the previous round and nobody chose L.
The percentages in each column do not add up to 100% because someone chose the irrational strategies WHL and WHH.

Table 1: Individual choices given different histories in the previous rounds

choosing WLH was actually minimal, as their final choice would be low effort and a payoff of 45 would be guaranteed. Therefore, although 10 percent of them switched to L, most of the WLH choosers were still willing to leave the chance of cooperation open, in case the L choosers might come around and decide to cooperate.

However, if those who chose WLH went through Hist 3, it means that they got only payoff 5 in the last round due to presence of the WLL choosers (and the absence of L choosers). In this case, WLH was no longer safe if someone in the group continued to choose WLL. Thus, it is understandable that 29 percent of them switched to the safe strategy L in the next round. 6 percent switched to WLL. According to the answers on the questionnaire after the experiment, some mentioned that they wanted to hurt others as a way of revenge. Surprisingly, 65 percent of them stayed with WLH for another round. Some mentioned on the questionnaire that they hoped that their group mate might come around or maybe had just made a mistake. Although we didn't elicit their beliefs in the game, it seems that these WLH choosers had great confidence in successful coordination with the delay mechanism.

Now, the question is: did those who chose L and WLH eventually switch back to the iteratedly undominated strategy WLH? According to the table, some of them did, which may have contributed to the rise in the group success rates.

If a subject chose L, then the only type of history he could observe would have been Hist 2. It should be noted that, because only limited information was communicated, that subject wouldn't be able to know whether someone else also chose L or whether

someone chose WLL. In such a case, 17 percent of the L choosers decided to take a bit of a risk and switch to WLH, which might have been the key to the slight increase in efficient coordination. This suggests that not all L choosers were pessimistic about the potential for the high outcome. However, for some reason, 11.9 percent of them switched to WLL, which would have been harmful to other players and the efficiency in the future rounds.

We also have a considerable number of subjects who used the strategy WLL (10.2 percent of all the observations in the table). Adopting WLL would have greatly hurt the WLH choosers in the group by leaving them with the payoff of 5 in that round. Therefore, we didn't expect to find this high proportion of WLL choosers before running the experiment. According to the table, if they had found out that someone in the group was choosing L, most of them would have stayed with the same strategy. In other words, they would have continued to choose this possibly harmful strategy if they had found that at least one group mate was not cooperating. If, in the other case, they found out that everyone else decided on WLH, some of them would have switched to the less harmful L and 8.1 percent of them would have switched to WLH. However, in most of the cases, they would not have gotten the high outcome by switching to WLH from WLL, because at least one of the group mates hurt by WLL would have given up WLH in the next round.