Cooperation in Repeated Interactions: IQ, Memory, Records, and Attention*

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Abstract

Cooperation in repeated interactions often requires agents to interpret histories and condition current behavior on past outcomes. This creates a role for cognitive traits, but also for institutions that record, organize, and make histories salient. We study these forces in an indefinitely repeated Prisoner's Dilemma with imperfect public monitoring. The experiment measures subjects' IQ and working memory and explores two forms of cognitive infrastructure: access to a history table and an attention aid requiring subjects to record past outcomes. In the baseline environment, where subjects receive neither aid, IQ and working memory predict cooperation, both in the short and long-run. Estimated strategies also differ sharply by cognitive traits. By contrast, these relationships disappear when records or attention aids are available.

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1 Introduction

Cooperation in economic life often requires people to interpret and remember histories. Trading partners must decide whether a bad outcome reflects opportunism or noise, coworkers must keep track of past contributions, and organizations must decide when to forgive mistakes and when to punish deviations. Repeated-game theory formalizes this logic: future consequences can sustain cooperation today, but only if agents can condition their behavior on relevant past events. In practice, that requirement can be cognitively demanding. People differ in their ability to notice and remember past outcomes, which can translate into variation in history-dependent behavior.

Indeed, recent evidence underscores the economic relevance of this issue. Han, Huffman, and Liu [2024] show that cognitive skills are related to pricing behavior among gas-station managers engaged in repeated price competition. Managers with lower cognitive skills are less likely to anticipate competitor responses to price cuts and are more likely to trigger price wars. More broadly, recent contributions of Alaoui and Penta [2016, 2022] and Gill and Prowse [2016] highlight the role that cognitive abilities play in strategic reasoning.

These findings suggest that cognitive traits can shape behavior in repeated strategic environments with substantial consequences for profits and welfare. At the same time, many institutions provide alternatives to such cognitive demands—records, reports, dashboards, reminders, audits, ratings, and other forms of institutional memory—that may reduce the importance of individual cognitive differences. Our paper studies how cognitive skills and external aids jointly shape cooperation in a repeated game experiment.

Theoretical work over the last decades has made substantial progress in analyzing environments with repeated interactions. Empirical work in this area is challenging, but experiments have proven a useful tool to study behavior in indefinitely repeated games. Early experimental work focused on the finitely repeated prisoner's dilemma (PD) [Flood, 1952], with random termination introduced later by Roth and Murnighan [1978]. Recent experimental work emphasizes the distinction between choices and strategies in repeated games [Fréchette, Vespa, and Yuksel, 2025]. Focusing on strategies has two implications: first, experimental subjects must *discover* profitable strategies, and second, implementing strategies requires keeping track of past outcomes—either with written or mental records. Both of these suggest a potential role for cognitive ability: subjects with higher intelligence may be better, or faster, at identifying and implementing profitable strategies.

The experimental laboratory provides a valuable, controlled setting in which to understand the mediating effect of cognitive skill and, in fact, recent evidence from the laboratory suggests that cognitive ability may be a key determinant of cooperation in the indefinitely repeated prisoner's dilemma. On the one hand, Proto, Rustichini and Sofianos [2019, 2022] document that interactions between participants with higher IQ levels can help sustain higher cooperation. On the other hand, Gill and Rosokha [2024] find no effect of their IQ measure on cooperation. As we discuss below, our results help reconcile these seemingly conflicting findings.

The current experiment investigates how cooperation depends on IQ, memory, and records, as well as attention, a factor that may mediate the effect of past outcomes on future behavior. In our study, to create a setting conducive to observing the role of intelligence (or memory), we implemented indefinite PDs with imperfect public monitoring.[1] More specifically, the implemented choice is different from the choice made by the subject with some known probability (as in Fudenberg, Rand, and Dreber [2012]). Unlike perfect monitoring, keeping track of past signals becomes more challenging since they change randomly, even if subjects coordinate on cooperative strategies.[2] The treatments vary the presence of a history table (records) and whether or not subjects are required to record past outcomes (attention). In all treatments, both IQ and working memory are measured.[3]

The paper makes three main contributions. First, it establishes that, in the absence of memory and attention aids, IQ and working memory have a substantial effect on cooperation in both the short and long run. Because our baseline treatment does not provide such aids, it closely resembles the experimental designs of Proto, Rustichini and Sofianos [2019 and 2022]. Consequently, our findings regarding IQ both replicate and extend the results documented in those studies, demonstrating that the relationship between cognitive ability and cooperation persists even under imperfect monitoring. In addition, we show that working memory also matters in such a setting.

Second, our paper shows that the relationship between cognitive traits and cooperation is modulated by the informational environment: records and attention

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[1] It has been shown that a perfect monitoring indefinite PD with *segregation* (i.e., where subjects play with other participants close to their IQ measure—IQ being the score on a Raven Matrices test) can lead to a role for intelligence. A design relying on segregation, however, makes it difficult to explore multiple co-factors. (See also Dal Bó and Fréchette [2025] for a re-analysis of these data.)

[2] It has been shown in prior work that subjects play more complex strategies in such settings (see for instance Fudenberg, Rand, and Dreber [2012] and Dal Bó and Fréchette [2018]).

[3] Studies in psychology report a correlation of about 0.3 between measures of IQ and working memory [Friedman et al., 2006].

aids eliminate the impact of cognitive differences. For example, when we provide participants with readily available history records, we no longer find an effect of IQ on cooperation. This result is consistent with the null finding in Gill and Rosokha [2024], who do provide a history of past records to participants.

Our third and final result is that an infrastructure, such as records or aids, decreases differences in strategies between subjects with high versus low IQ and working memory. In other words, the presence of infrastructure aiding memory and attention can serve as a substitute for low cognitive ability.

2 Design and Data Description

To begin the session, participants complete the Keep Track task [Friedman et al., 2006]. In this task, participants are told two, three, four or five categories of words that will be shown on their screen. Then, 15 words are flashed on the screen, one at a time, and each subject's task is to report the last word they were shown in each category. Subsequently, we measure the subjects' IQ using a 12-item version of Raven's Progressive Matrices [Arthur Jr and Day, 1994]. Participants are shown a series of visual patterns. They must identify the missing piece that correctly completes the pattern. The patterns follow logical rules, and the score is a measure of fluid intelligence.

Following the Keep Track and Raven's Matrices tasks, instructions for the second part in which subjects will play an indefinitely repeated Prisoner's Dilemma are distributed. In particular, subjects repeatedly make choices in the following stage game:

	A	B
A	7, 7	2, 9
B	9, 2	4, 4

where A corresponds to cooperation and B to defection. After making a choice, A or B, the subject's choice is correctly implemented with probability $\frac{7}{8}$, and with complementary probability $\frac{1}{8}$, the other action is implemented "erroneously" (for instance, B is implemented even though A was chosen).[4] Subjects are informed of both their

[4]Parameters were selected, based on prior experiments, to generate positive but not full cooperation.

implemented choice and of their opponent's implemented choice, but not of their opponent's intended choice. Payoffs are determined by the two implemented choices.[5] Supergames are composed of a sequence of one-shot games, each stage game is the last of a supergame with probability $\frac{1}{8}$. Given these parameters, cooperation can be supported in equilibrium using a strategy in which subjects play (A, A) until the first signal of B, at which point they switch to (B, B) ever after. In Online Appendix A, we describe SPE supporting cooperation. After a supergame terminates, subjects are randomly re-matched to play a new supergame. The first supergame to end after 40 minutes of play ends the session. This results in between seven and 30 supergames per session (depending on the session).

In the Baseline treatment, after both players have made their choices, the subjects are informed of the implemented choices of both players, the outcome, and are reminded of their intended choice. At the end of each supergame, subjects are shown their total points for the supergame. The History treatment provides a memory aid. That is, in addition to what is in the Baseline, the interface displays a recorded history table with the feedback from each round of the current supergame. Subjects can also use that table to recall the history of their own previous supergames.[6] At the end of each supergame, they are shown the round-by-round information in the history table, as well as the total points summed across rounds. The Attention treatment is exactly like the Baseline treatment, except that it provides an attention aid. After every round, subjects must type back into the interface the implemented choices of both players before the interface moves to the following round. The History + Attention treatment combines the History table and the attention aid.

Eight sessions per treatment were conducted at UCSD.[7] In total 540 subjects participated in the experiment, resulting in $10,960$ to $12,080$ PD choices per treatment. Subjects were paid 0.033 USD for every point accrued over the course of the session. Sessions lasted 79 minutes on average, and subjects earned an average of USD 26.26. Sample instructions and screenshots can be found in the procedures appendix.[8]

[5] This version of imperfect monitoring is first introduced in Fudenberg, Rand, and Dreber [2012].

[6] We note that our informal assessment is that the History treatment corresponds to the most common implementation in experiments on indefinitely repeated PD.

[7] In the baseline treatment, the random termination of supergames is determined by a pseudo-random number generator whose seed is fixed by the internal clock of the computer at the time the session starts. In other treatments, each session is matched to a specific seed such that termination lengths are matched. Because of an error, two sessions in the baseline were conducted with the same seed, thus two sessions of each of the other treatments also repeated that seed.

[8] The interface is designed in oTree [Chen, Schonger, and Wickens, 2016] and subjects were recruited using Sona Systems among registered participants at UCSD's EconLab.

Because the number of supergames varies across sessions, we trim the data from sessions with more supergames to have comparable data across treatments.[9] Our results are typically split into results for *late* and *early* supergames. Late (early) supergames are the last (first) 5 supergames of a session in our balanced dataset.[10]

When analyzing the data, unless noted otherwise, regressions are Linear Probability Models that include: random-effects (at the subject level), clustering at the session level, and controls for the length of supergames experienced in a session.[11] Throughout we use *, **, and *** to indicate statistical significance at the 10, 5, and 1 percent thresholds, respectively. The term *statistically significant* is used to indicate p-values ≤ 0.1. To make figures and coefficient estimates easily comparable, IQ and memory are standardized to have mean 0 and a standard deviation of 1.

Our subjects' average Raven score is 8.8, with a median of 9 (out of 12). For the memory test, subjects have a mean of 4.3, with a median of 4, and the scores range from 0 to 9. The correlation between the two is 0.17.

3 Results

Cooperation Rates, IQ, Memory, and Experience in Baseline

We start by outlining the relationship between cooperation, IQ, and Memory in our Baseline treatment. In this environment, participants observe the outcome for the round but are provided neither with a memory aid (i.e., there is no history table) nor with an attention aid (i.e., we do not ask them to type the implemented choices back). The top left panel of Figure 1 reports the relation between IQ and cooperation for early supergames (it includes both a binscatter and a regression line), while the bottom panel is for late supergames. The results are consistent with the findings reported in Dal Bó and Fréchette [2025], namely IQ becomes relevant but only with

[9]In particular, for each session, we first count how many supergames subjects completed, which we call *max supergame*. Then, for each seed, we compute the smallest value of *max supergame*, and remove all supergames after this point. This gives us a balanced panel within a seed, which constitutes the dataset we use for analysis.

[10]For one seed, the smallest value of max supergame was 7, and so we consider late (early) supergames to be the last (first) 3 supergames of each session with that seed.

[11]More specifically, our regressions include a dummy variable for each *seed*. Prior evidence indicates that the realized length of supergames can have an effect on choices [Dal Bó and Fréchette, 2018]. See Fréchette [2012] and Appendix A.4 of Embrey, Fréchette, and Yuksel [2018] for discussions on the analysis of experimental data.

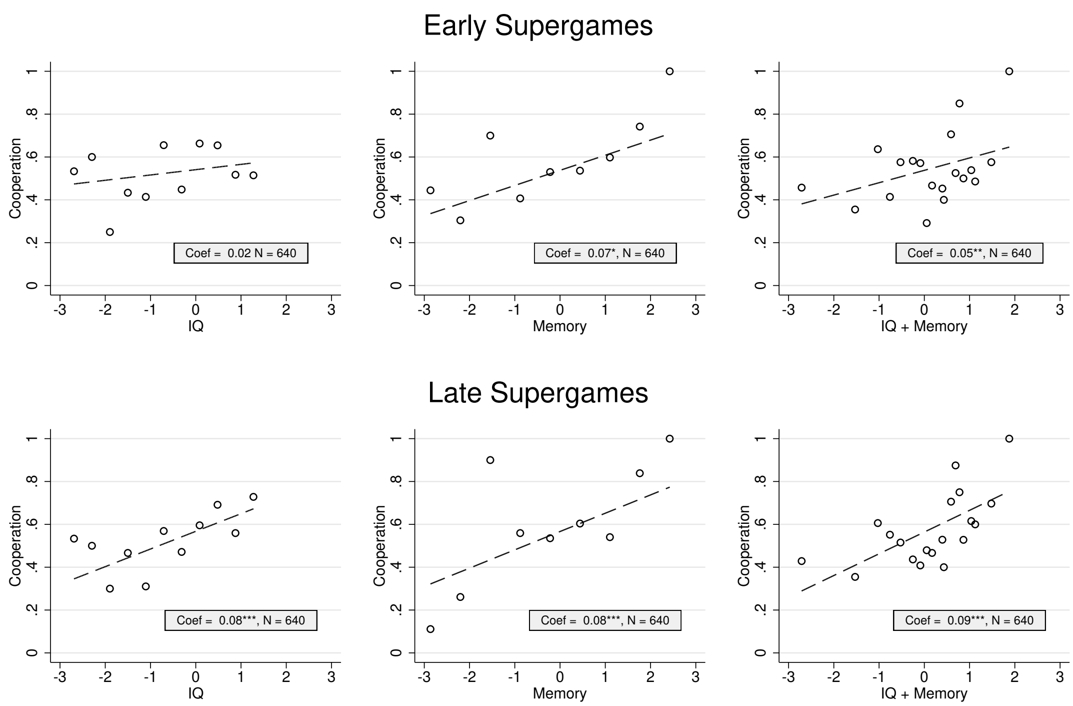

Figure 1: Round 1 Cooperation in Baseline

experience. In late supergames, the relation is important in magnitude, going from the bottom to the top quintile of IQ, cooperation increases by 27 percentage points. The top and bottom middle panels repeat the exercise for memory. Similar to IQ, the relation with memory is more pronounced for late supergames. Comparing the bottom and top quintile of the memory distribution, cooperation in late supergames also increases by a sizeable amount; in this case 36 percentage points.[12]

Table 1: Baseline: Effect of IQ and Memory on Round 1 Cooperation

Variable	Coefficient	p-value
IQ	0.070	0.001
Memory	0.069	0.018
Interaction	0.041	0.065
Constant	0.416	0.000

Linear Probability Model with random effects at the subject level.
Robust standard errors clustered by session.
Includes controls for session seed (see Appendix Table 3).

Given the positive correlation between IQ and memory, Figure 1 does not reveal whether IQ, memory, or both drive the relationship with cooperation. Table 1 reports estimates of a regression of round one cooperation on IQ, memory and their interaction for late supergames. The results reveal that both IQ and memory have an impact on cooperation and are of comparable size (the estimates differ starting with the fifth decimal). Hence, an easy way to represent the impact of both IQ and memory is to average them.[13] The rightmost panels of Figure 1 show the impact of IQ+Memory on round one cooperation. The impact on cooperation for the combined measure of going from the bottom to top tercile is 25 percentage points for late supergames, but larger than for individual factors for early supergames at 10 percentage points. However, with the combined measure there is more variability in the measure itself allowing smaller bins; comparing the top and bottom deciles indicates a substantial impact: a 45 percentage-point increase in cooperation for late supergames (35 for early). We summarize these findings below.

[12] Unlike IQ, memory has a statistically significant impact even in early supergames. The increase (30 percentage points) is slightly smaller than for late supergames, but we note that the magnitude for early supergames is sensitive to the bin size.

[13] *IQ+Memory* is used to designate the standardized average of IQ and memory.

Result 1 IQ and memory affect cooperation in an environment with no memory or attention aids. The effect is important and of similar magnitude after subjects have gained experience. Initially the effect is less pronounced and only present for memory.

Finally, with respect to IQ, this finding provides a conceptual replication of Proto, Rustichini and Sofianos [2019, 2022], who also find that measured IQ is positively associated with cooperation. Our finding expands theirs for two reasons. First, we show that the result can be achieved without segregation; Proto, Rustichini, and Sofianos [2022] separate high- and low-IQ participants and show that when high-IQ participants interact with each other cooperation rates are higher. In other words, we show that the correlation between IQ and cooperation can be observed even if high- and low-IQ participants interact with each other. Second, we document that the correlation is also present in a setting without perfect monitoring, hence expanding the environments to which the result applies. What Proto, Rustichini, and Sofianos [2022] and our Baseline treatment share is that both experimental designs provide no memory or attention aids. We now turn to studying whether memory or attention aids can mitigate the effect of cognitive differences on cooperation.

The Effect of Memory and Attention Aids on Cooperation

Figure 2 repeats the analysis of the impact of IQ+Memory on round one cooperation for the Baseline in late supergames, but contrasts it to its impact in the other treatments. As the figure reveals, the impact of IQ+Memory disappears in the other treatments. Hence, when subjects are given a record of past outcomes, if they are forced to note the outcomes, or both, the combined effect of IQ+Memory disappears.

Figure 3 disaggregates IQ+Memory into its component parts (the top row repeats panels from Figure 1 for comparison), but aggregates all non-baseline treatments together (thus increasing the power to potentially detect an effect). As can be seen, the effect is not present either for IQ or memory, even when all three non-baseline treatments are aggregated.[14]

Result 2 The impact of IQ and memory on cooperation disappears when subjects have access to records of past outcomes or when they are forced to note past outcomes.

[14]The absence of a result for IQ is consistent with findings documented by Gill and Rosokha [2024], who provide a history table to participants.

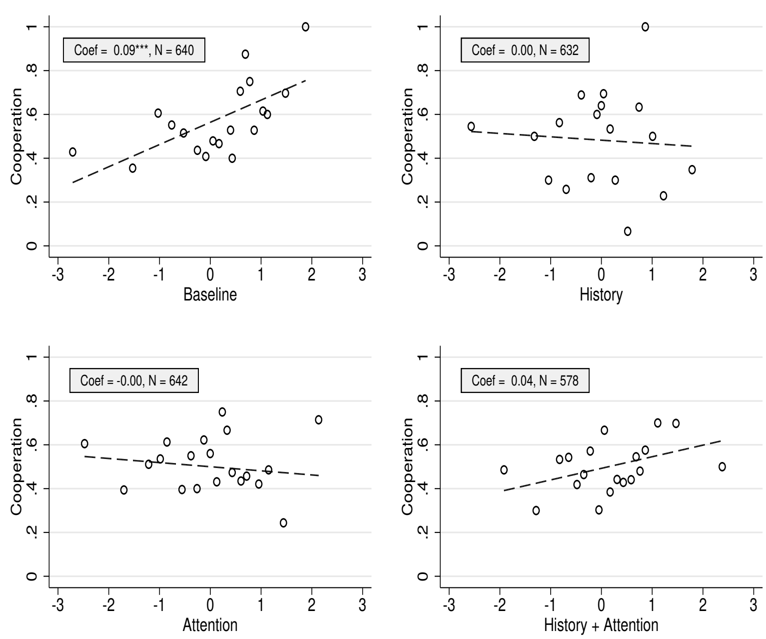

Figure 2: All treatments: Round 1 Cooperation in Late Supergames

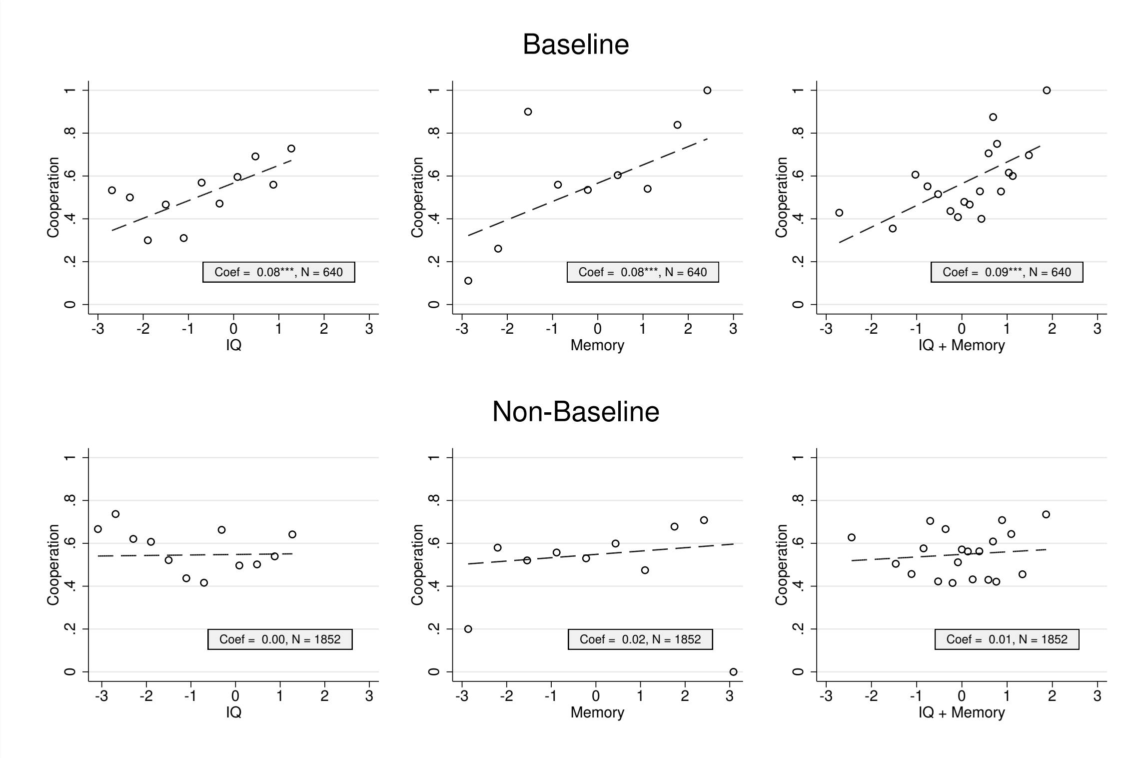

Figure 3: Round 1 Cooperation in Late Supergames

Both Results 1 and 2 are observations with respect to willingness to initiate cooperation. A different question is whether IQ and memory have long-run effects on cooperation. Because of the endogeneity of choices within a supergame, analyzing round-level cooperation can be challenging. However, a simple way to gain insight into the long-term effects of IQ and memory is to consider their impact on joint cooperation in the last round of a supergame. In late supergames, a regression of an indicator for both subjects cooperating in the final round of a supergame on IQ+Memory is 0.09 (significant at the 5% level) in the Baseline, while it is 0.00 in Non-Baseline treatments.[15]

As with round one cooperation, there is a clear relation in the Baseline that disappears in the other treatments. When two subjects with higher IQ+Memory interact together, they are more likely to be both cooperating in the last round of a supergame in the Baseline; but this is not true in treatments with records or when they are asked to note outcomes.

Result 3 The impact of IQ and memory on cooperation persists in the long run when there are no records or attention aids; but no such effect exists when either is available.

As noted earlier, round one choices are only a small part of a supergame. To explore further how subjects with different IQ and memory behave and the impact of records and attention aids, we estimate the strategies subjects use. We use the Strategy Frequency Estimation Method (SFEM) [Dal Bó and Fréchette, 2011]. This is a finite mixture model and requires the specification of a set of possible strategies. The results provide estimates of the share of each strategy and of the probability that the strategy is implemented correctly (β); see Dal Bó and Fréchette [2018] for a review. The set of strategies used here augments the strategies in Fudenberg et al. [2012]. In particular, it adds a strategy described and observed in Embrey et al. [2013], *Sum2*, and a strategy recently proposed in Bigoni et al. [2025], *Payback*, for a total of 23 strategies. Sum2 looks back 2 rounds (within a supergame) and cooperates if there are at least as many cooperate (implemented) choices as defect choices by the other and defects otherwise.[16] Payback is described in detail in Bigoni et al. [2025], but it is a three-state strategy that allows returning to cooperation after

[15] Online Appendix Figure 4 displays the relation between average IQ+Memory for a pair of players on the probability of joint cooperation in the last round of a supergame for Baseline and Non-Baseline treatments.

[16] This is a slight adaptation of the strategy as described in Embrey et al. [2013] because the monitoring technology is different.

Table 2: Summary of SFEM with 23 Strategies – Late Supergames

Treatment	Baseline		Non-Baseline	
	Below Median	Above Median	Below Median	Above Median
Cooperative	0.538	0.668	0.581	0.566
Lenient	0.351	0.456	0.448	0.444
Forgiving	0.330	0.421	0.374	0.395
β	0.862	0.893	0.862	0.891
Sum. Abs. Difference	0.593		0.358	

Cooperative: strat. that start w/coop. and do not prescribe unilateral deviation.
Lenient: strat. that start w/ coop. and may allow for more than one deviation before punishment.
Forgiving: strat. that start w/ coop. but allow for a return to coop. after an earlier deviation.
β provides a measure of how closely the choices correspond to the prescription of the strategies.
Sum. Abs. Difference reports the absolute value of the difference between the above and below median estimates and sums over all 23 strategies.

a punishment but requires *paying back* the player who was defected on to do so. The other strategies are described in Fudenberg et al. [2012] but they include all the *standard* strategies such as always defecting ($ALLD$), the grim trigger strategy, which starts by cooperation and defects forever following a defect by either player ($Grim$), tit-for-tat that starts by cooperating and then matches the implemented choice of the other in the previous round (TFT), and many *lenient*, *forgiving*, and *suspicious* versions of those strategies.[17]

Table 2 summarizes the key results.[18] The estimation is done separately for the baseline and non-baseline treatments, but also for below and above median subjects in terms of IQ+Memory. It presents the strategy estimates aggregated in three non-mutually exclusive groups, following Fudenberg et al. [2012]. Cooperative strategies include those in which participants start by cooperating and do not transition to a punishment phase unless triggered by a deviation. Lenient strategies include those in which participants are willing to allow for more than one deviation before punishing

[17]A detailed description of all included strategies and their classification into the three groups summarized in Table 2 is provided in Table 4 of the Online Appendix.
[18]Table 6 of the Online Appendix provides the full output.

and forgiving strategies capture those that allow for a return to cooperation after defection. Visual inspection indicates that strategy choices are fairly different for below and above median subjects in the baseline treatment. Subjects with higher IQ+Memory are more likely to use cooperative and lenient strategies and in late supergames, they also use a higher share of strategies that are forgiving. By contrast, differences between high and low IQ+Memory in strategy choice appear much more muted in Non-Baseline treatments. This point is made more precisely in the *Sum. Abs. Difference* that takes the sum of the absolute difference in the vector of strategy estimates between high and low IQ+Memory for all 23 strategies. As can be seen, the difference is higher for the Baseline treatment.[19]

Result 4 Records and attention aids decrease differences in strategies between subjects with high versus low IQ + Memory.

4 Conclusion

This paper studies how cognitive skills—IQ and working memory—affect cooperation in indefinitely repeated Prisoner's Dilemmas with imperfect public monitoring, and how records and attention aids mediate the effect. In the baseline treatment without such aids, individual differences in IQ and working memory are positively related to both initial and sustained cooperation. By contrast, once records or attention aids are available, these differences disappear. Consistent with this result, records and attention aids decrease differences in strategies used by subjects with high versus low cognitive ability. Overall, our results suggest that conclusions about the relationship between cognitive ability and strategic play can depend qualitatively on the informational and cognitive aids available in the environment.

Our results have implications beyond the laboratory. Many institutions (firms, teams, platforms, legal systems, credit markets, and reputation systems) devote substantial resources to preserving and presenting histories. Our findings suggest that such systems may matter not only because they provide information, but because they change who can effectively use information to sustain cooperation. In this sense,

[19]Table 5 provides the output using early supergames. The estimation reveals that the patterns documented for late supergames in Table 2 are also reflected in early supergames. Even though differences persist for late supergames, the results also suggest that experience makes both low and high IQ+Memory subjects less dissimilar. For example, *Sum. Abs. Difference* for Baseline (Non-Baseline) in Early Supergames equals 0.754 (0.544), which is higher than the 0.593 (0.358) documented in Table 2.

institutional memory can substitute for individual memory, and the design of records and aids can affect the distribution of cooperative outcomes. This perspective also suggests a way to interpret behavior in field settings. For example, if differences across managers partly reflect differences in how they attend to, remember, or interpret strategic histories, as in the setting studied by Han, Huffman, and Liu [2024], firms may be able to reduce manager-specific variation by improving how relevant histories are recorded and presented. At the same time, because shared histories can facilitate history-dependent strategies, the design and dissemination of such information may also matter for regulators concerned with coordinated or collusive behavior.[20] Finally, in informal repeated interactions where there are few external records or prompts, individual cognitive ability is likely to play a larger role in determining the extent of cooperation people can achieve.

[20]For instance, a live debate among academics and practitioners is the degree to which third-party information-sharing platforms facilitate collusion (see e.g., Clark and Houde [2026] for a recent contribution). A key function of third-party information-sharing platforms is that they publicize information that would otherwise be difficult for firms to observe (such as each other's prices or volumes), thereby facilitating collusion. A closely related function of third-party information-sharing platforms is to produce a high-quality historical record, which managers may value even for information that they observe in real time. To the extent that this record improves the capability of managers to identify cooperative strategies, it will compound the anti-competitive effects of information-sharing platforms.

References

Larbi Alaoui and Antonio Penta. Endogenous depth of reasoning. *The Review of Economic Studies*, 83(4):1297–1333, 2016.

Larbi Alaoui and Antonio Penta. Cost-benefit analysis in reasoning. *Journal of Political Economy*, 130(4):881–925, 2022.

Winfred Arthur Jr and David V Day. Development of a short form for the raven advanced progressive matrices test. *Educational and Psychological measurement*, 54(2):394–403, 1994.

Maria Bigoni, Marco Casari, Andrea Salvanti, Andrzej Skrzypacz, and Giancarlo Spagnolo. The importance of being even: Restitution and cooperation. *Working Paper*, 2025.

Daniel L Chen, Martin Schonger, and Chris Wickens. otree—an open-source platform for laboratory, online, and field experiments. *Journal of Behavioral and Experimental Finance*, 9:88–97, 2016.

Robert Clark and Jean-François Houde. Do information sharing platforms facilitate coordination? evidence from the collapse of a cartel. 2026.

Pedro Dal Bó and G.R. Fréchette. The evolution of cooperation in infinitely repeated games: Experimental evidence. *American Economic Review*, 101(1):411–429, 2011.

Pedro Dal Bó and Guillaume R Fréchette. On the determinants of cooperation in infinitely repeated games: A survey. *Journal of Economic Literature*, 56(1):60–114, 2018.

Pedro Dal Bó and Guillaume R. Fréchette. Coordination and cooperation. Working Paper, 2025.

Matthew Embrey, Guillaume R Fréchette, and Sevgi Yuksel. Cooperation in the finitely repeated prisoner's dilemma. *The Quarterly Journal of Economics*, 133 (1):509–551, 2018.

Matthew S. Embrey, Guillaume R. Fréchette, and Ennio Stacchetti. An experimental study of imperfect public monitoring: Renegotiation proofness vs efficiency. *Working Paper*, 2013.

Merrill M. Flood. Some experimental games. *Research Memorandum RM-789, The Rand Corporation, Santa Monica*, 1952.

Guillaume R. Fréchette. Session-effects in the laboratory. *Experimental Economics*, 15(3):485–498, September 2012.

Guillaume R Fréchette, Emanuel Vespa, and Sevgi Yuksel. Repeated games. In *Handbook of Experimental Methodology*, volume 1, pages 197–234. North-Holland, 2025.

Naomi P Friedman, Akira Miyake, Robin P Corley, Susan E Young, John C DeFries, and John K Hewitt. Not all executive functions are related to intelligence. *Psychological science*, 17(2):172–179, 2006.

Drew Fudenberg, David G. Rand, and Anna Dreber. Slow to anger and fast to forget: Leniency and forgiveness in an uncertain world. *American Economic Review*, 102 (2):720–749, 2012.

David Gill and Victoria Prowse. Cognitive ability, character skills, and learning to play equilibrium: A level-k analysis. *Journal of Political Economy*, 124(6):1619–1676, 2016.

David Gill and Yaroslav Rosokha. Beliefs, learning, and personality in the indefinitely repeated prisoner's dilemma. *American Economic Journal: Microeconomics*, 16 (3):259–283, 2024.

Yi Han, David Huffman, and Yiming Liu. Minds, models and markets: How managerial cognition affects pricing strategies. Working Paper, 2024.

Eugenio Proto, Aldo Rustichini, and Andis Sofianos. Intelligence, personality and gains from cooperation in repeated interactions. *Journal of Political Economy*, 127 (3):1351–1390, 2019.

Eugenio Proto, Aldo Rustichini, and Andis Sofianos. Intelligence, errors and cooperation in repeated interactions. *Review of Economic Studies*, 89(5):2723—-2767, 2022.

Alvin E. Roth and J. Keith Murnighan. Equilibrium behavior and repeated play of the prisoner's dilemma. *Journal of Mathematical Psychology*, 17:189–198, 1978.