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Wage Compression and Manager Inequality Aversion

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Abstract

Literature exploring pay finds that highly(less) productive workers often earn less (more) than they would if compensation perfectly reflected productivity, indicating "wage compression". Using a laboratory experiment, we show that such wage compression may partially be due to managers' own preference for equality.

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1 Introduction

Wage compression is often observed in the lab (e.g., Charness and Kuhn, 2005; Gross et al., 2015) and outside the lab (Bishop, 1987; Frazis et al., 2006). One of the more common motivations for wage compression is the belief that workers will react negatively to wage inequality which is thought to lead to morale problems and diminish teamwork (Milgrom and Roberts, 1992; Bewley, 1999). Consequently, wage compression may be efficient for the firm (e.g., Lazear, 1989).

Models of inequality aversion (e.g., Fehr and Schmidt, 1999) propose individuals suffer disutility if they earn less, or more, than a comparison group. Thus workers paid less have the incentive to reduce the performance of the group to equalize earnings. This is consistent with concerns regarding negative social comparisons, but ignores the possibility that managers might also experience inequality aversion. We propose this as a plausible motivation for wage compression in addition to the other motivations that have been previously researched (e.g., uncertainty and negative social comparisons).

Using a lab experiment, we show that managers often give raises to less productive employees. Employees face high-powered incentives in an environment with no uncertainty, no communication, independent production. In such environments, monetary incentives have been found to swamp other concerns that employees may have (Prendergast, 1999). Nevertheless, managers often reward the less productive worker - which equalizes wages - and implies wage compression. This tendency is positively related to (self-reported) concern for others' well-being and allocation to a recipient in a hypothetical dictator game. This suggests that wage compression is partially due to managerial preferences for equality.

2 Experiment

Subjects participate in a task for multiple periods. The task is identical to the one used in Erkal et al. (2011). Subjects are given randomly generated five-letter "words" that they have to code into a numerical string. Subjects are provided a number code for each letter and enter that number for each letter in the word.[1]

There are two stages. Stage 1 is a practice stage consisting of two 60 second periods . Subjects earn a wage rate of 1 pence for each correctly coded "word" and are given, in private, a running total of the number of words they have correctly coded. Stage 2 has 5 periods (600 seconds each). Subjects are not told how many periods there are. At the start of Stage 2 subjects are randomly assigned into groups of three and assigned a label: Worker 1, 2 or 3. Subjects are truthfully told labels and groups did not depend on Stage 1 performance.

Worker 1 earns a wage rate of 7 pence per word and a bonus equal to the total number of words coded correctly by Workers 2 and 3 in that period, in pence. In period 1 of Stage 2, Workers 2 and 3 earn 3 pence per word correctly coded. At the end of each period in

[1] Instructions are in Appendix A.

Stage 2, Worker 2 or 3 is given a wage increase of 1 pence. Thus the maximum(minimum) wage rate a worker could receive, if he/she was(was not) "promoted" in every period, was 7(3) pence by the beginning of period 5. Worker 1 was never eligible for a promotion but to maintain consistency with controls (discussed shortly) must promote a worker in every period.

In Stage 2 subjects can stop the coding task to spend time on one of two unpaid outside options. Subjects can play tic-tac-toe against a computer or surf the internet. Subjects can return to the coding task at any time.

At all times in Stage 2, subjects receive real-time information (updated every 10 seconds) regarding the number of words coded correctly by themselves and the other subjects in their group (in that period). Subjects also see the current wage and accumulated earnings of the subjects in their group and whether a subject in their group stopped coding.

Our three treatments differ in how the wage increase of Workers 2 and 3 is implemented. In what follows, we refer to Worker 1 as the manager and Workers 2 and 3 as employees. In our Manager treatment, the manager chooses which worker to "promote" at the end of each period. The manager must give the wage increase to either Worker 2 or 3. We run two baseline treatments. In Highest, the worker with the highest output in their group in the period is given the wage increase. In Random, the wage increase is randomly assigned.

There are 15 groups in each treatment (135 subjects). Sessions take place at the University of East Anglia, using student subjects and programmed in z-Tree (Fischbacher, 2007). Subjects read instructions on their screens and must correctly answer review questions before they can proceed. At the end of a session, subjects complete a short survey which contained the following two questions that we use to proxy for their inequality aversion/care for others.

1. Imagine you are given 100 Pounds to split between yourself and another person, how much would you give to the other person?

2. On a scale of 1 to 100 (with 1 being not at all concerned and 100 being fully concerned), how concerned are you about the well-being of others in everyday life?

Groups are fixed. Each group is assigned to one of the three treatments, with at least one group in each treatment in each session. Session lasted around 70 minutes. Subjects earned an average of £17.96, plus a £2 show-up fee.

3 Results

Table 1 presents the average total output in Stage 2 by more and less productive employees (determined by production in the first period in Stage 2), and as a whole. In all treatments, the more productive employees produce more output than do less productive employees. Table 1 also shows that there is little difference in the production of more and less productive employees across treatments. These differences are not statistically significant. There

are no significant differences in average employee production across treatments.[2]

Table 1: Average Total Output (st dev) of Employees

	Obs.	Worker Productivity Higher	Lower	Total
Manager[a]	15	326.87	266.47	593.33
		(34.23)	(60.97)	(79.34)
Highest[b]	15	330.73	269.79	582.53
		(76.41)	(57.13)	(95.88)
Random[c]	15	332.87	272.73	605.6
		(95.98)	(63.19)	(140.91)
a=b		0.5337	0.8442	0.5897
a=c		0.7874	0.8845	0.8519
b=c		0.7244	0.9131	0.4553

Notes: Bottom rows presents p-values from Wilcoxon ranksum tests for differences across treatments.

Figure 1 presents average output, earnings, and wage by period and employee productivity type. In all treatments and periods, higher productivity employees are significantly more productive than low productivity employees. The output differential (output gap between high and low productivity employees) across treatments is not significantly different. The earnings differential is not different across treatments in periods 1 to 4. However, in period 5, the earnings differential is significantly greater in Highest than in Manager (Ranksum p = 0.0796) and in Random (Ranksum p = 0.040). Moreover, there is no significant difference in the earnings differential between Manager and Random (Ranksum p = 0.619). Thus, while outputs and output differentials are not significantly different across treatments, differences in the way raises are awarded lead to a greater earnings gap in Highest.

Wages of low and high productivity employees are similar in Manager, but not in Highest. The gap in final wages is only marginally significant in Manager (5.33 vs. 4.67; Signrank p = 0.097) while it is highly significant in Highest (6.13 vs. 3.79; p = 0.003). The final wage gap is also significantly greater in Highest than in Manager (p = 0.010).[3] Thus, we find evidence of wage compression.

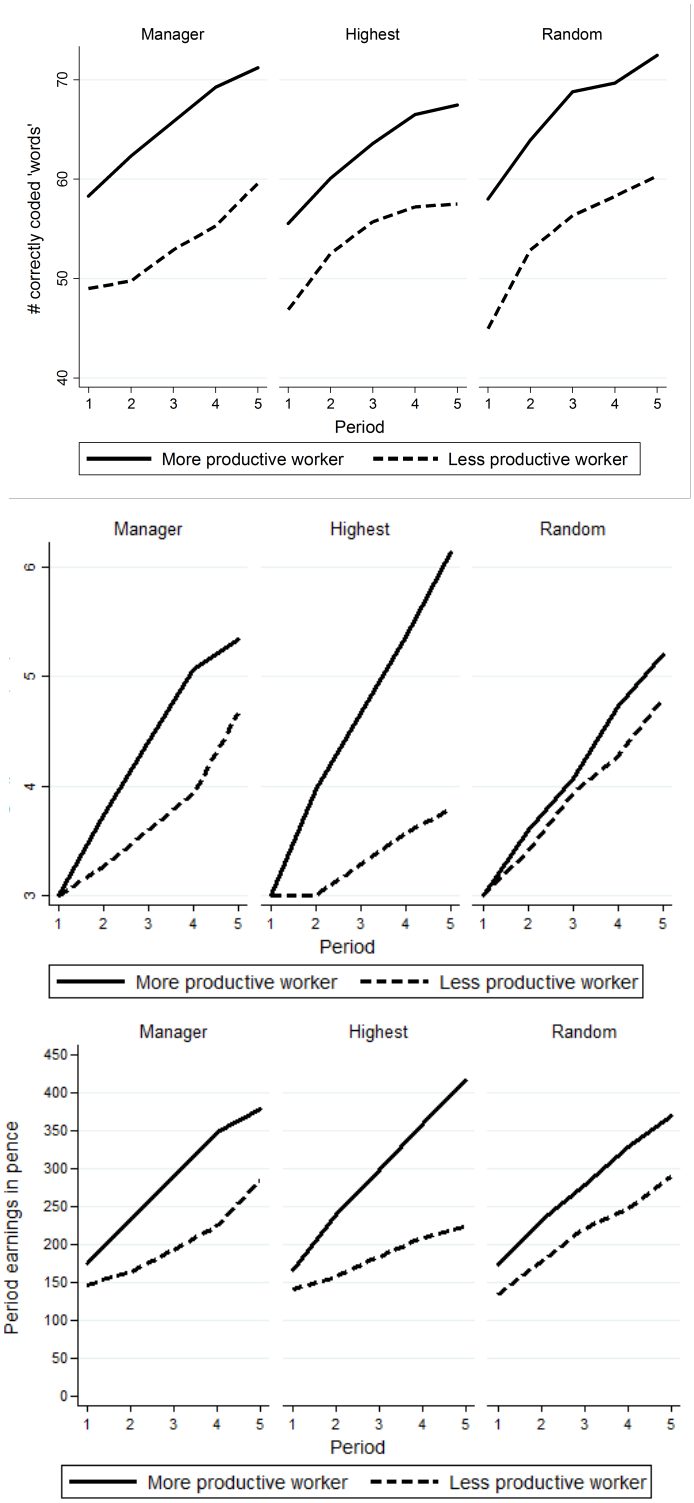
Wage compression occurs when raises are awarded by human managers. Managers award the raise to the more productive employee in only 63% of the instances.[4] While this proportion is significantly greater than 50% (p = 0.028), it is less than the 100% rate observed in Highest (p < 0.001). Thus, managers do not always promote the more productive employee, and tend to equalize wages between more and less productive employees. Table B2

[2]Additional analysis relating to managers (or worker 1) is found in Appendix B.

[3]The final wage gap is not significant in Random (5.2 vs. 4.8; p = 0.418) which is not significantly different from that in Manager (p = 0.655).

[4]See Appendix B2 for an analysis of decisions of individual managers.

Figure 1: Output, Wages, and Earnings by Period



in Appendix B provides further evidence of managers' tendency to equalize wages.

There is no evidence that wage increases affect the productivity of employees, regardless of ability or treatment - see Table B5 in Appendix B. Instead, we explore managers' motivations. Table 2 presents estimates of Poisson regressions of the number of times a manager awarded the wage increase to the more productive employee (0-5) as a function of how much they would send (0-100) to matched partner in a hypothetical dictator game (Dictator Allocation) and their subjective concern (0-100) for the well being of others (Others' Well-Being).[5] Both are significant, and negatively related to the number of raises awarded to the more 'deserving' employee.[6] This suggests that the observed wage compression by managers is partially explained by managers' preferences for equality and concern for others.

Table 2: Regressions – Social Preferences of the Manager

	M1	M2
Dictator Allocation	-0.025^{***}	-
	(0.01)	
Others' Well-Being	-	-0.010^{***}
		(0.00)
Constant	2.314^{***}	1.902^{***}
	(0.28)	(0.24)
Observations	15	15

Notes: Dep. variable is the number of raises awarded to the more productive employee. Robust SE in parentheses. * p < 0.10, ** p < 0.05, *** p < 0.01

4 Conclusion

Previous work on compensation stresses the harm that may be caused by negative social comparisons. Empirical research shows that managerial choices weaken the link between productivity and wages and thus compresses wages. We find evidence that managers practice wage compression even in a setting where employees' social concerns are likely to be weak. This tendency to equalize wages is linked to managers' own concern/preference for equity. This finding may reconcile the puzzle of experimental studies finding that negative social comparisons have little to no impact on productivity (e.g., Charness and Kuhn, 2005) yet wage compression is still common. Management may simply have a preference for equality and is using a "reasonable" motivation to act on their preferences.

[5] We are comfortable using hypothetical dictator game behavior because the amounts transferred in actual dictator games are similar to the amounts sent when the game is posed as a hypothetical one (Ben-Ner et al., 2008)

[6] Results are robust to Tobit and OLS specifications. See Table B4 in Appendix B.

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Electronic Supplementary Material

for

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Appendix A. Experimental Instructions

Screen 1

Welcome to the experiment. If you have not done so already, please put away all your belongings and turn off your mobile phones. You will need your complete attention.

The instructions for today's experiment are simple, and if you follow them carefully, you can earn a considerable amount of money in addition to your participation fee of £2. All the money you earn is yours to keep, and will be paid to you, in cash, and in private, after the experiment ends. Your confidentiality is assured.

If you have a question, I ask that you raise your hand. I will come to you and answer your question in private. If your question is applicable to all participants in today's experiment, I will repeat your question and provide the answer aloud for the benefit of all the participants in today's session.}

Screen 2

Introduction

In this experiment, you will be randomly assigned to a team of three individuals. You will stay in the same team for the whole experiment. In the experiment, you will complete a task (to be discussed later). By completing this task, you will earn money in addition to your participation fee. Your final earnings depend on your performance on the task as well as your wage (to be assigned at the start of each stage of the experiment).

This experiment consists of two stages. Each stage consists of periods that vary in length (i.e., time). The first stage is a practice stage where you will complete tasks that are exactly like those you will see in the second stage. The only difference will be that your wage rate (i.e., the amount you are paid for completing a task correctly) and the amount of time you spend in a period may change.

Unless there are questions, please click the "Next" button.

Question

Does group composition change across periods in the second stage of the experiment?

Screen 3

Stage 1

Stage 1 will be made up of 2 periods. Each period in the first stage will last 60 seconds. Stage 2 will be made up of multiple periods and each period will last longer.

In each period, in both stages, you will have the opportunity to engage in a task that will earn you money.

Stage 1 is designed to be a practice stage for you to become familiar with the task. You **will** be paid for your performance in Stage 1.

Unless there are questions, please click the "Next" button.

Question

Stage 1 is a practice stage. Will you be paid for your performance in Stage 1?

Screen 4

The Task

The task will involve encoding sequences of letters into a numerical code. There will be a table at the top of the screen with all the letters in the alphabet and a number below each one. This table will represent a code

Below the table you will find a five letter "word" which is a randomly generated set of five letters. You will be asked to enter the corresponding number below each letter and then press OK to submit and move on to the next word.

During Stage 1 you will earn 1 pence for each word you correctly code. This is your wage rate. In Stage 1, all participants will be paid the same amount for each word they correctly code (i.e., all participants will have the same wage rate).

At the conclusion of the first stage, you will briefly be shown a summary of your earnings and performance from the first stage. You will not be given any information regarding the performance of the other members of your team.

Unless there are questions, please click the "Next" button.

Screen 5

Stage 2

In Stage 2, one member of your team will be randomly chosen to be Worker 1. The other two members of your group will be Workers 2 and 3. In addition, Worker 1 and 2 will belong to a Blue group. The assignment of roles and membership into the Blue group will be done at random. In particular, it will NOT be based on anyone's performance in Stage 1.

You will be told your role and your group at the start of the second stage. Your role and group will remain the same for the rest of the experiment.

Questions

How are worker roles assigned?

In Stage 2, do worker roles change from one period to the next?

Screen 6

Stage 2

In every period in Stage 2, all workers can perform the same coding task again. Additionally, at any point in a period in Stage 2, everyone will be given the option to surf the internet or play the game tic-tac-toe. If you select to not participate in the coding task (e.g., choose to surf the internet) at any point in the period, you can always return to the coding task by pressing a "return" button. We will discuss how to return to the coding task later.

Screen 7

Earnings

In Stage 2, your earnings and wage rate depend on whether you are Worker 1 or Worker 2 or 3.

Worker 1

If you are Worker 1 your wage rate will be 7 pence for every word you code correctly. Your wage rate will be the same for all periods in Stage 2. In addition, you will receive a bonus (in pence) equal to the total number of words coded by Workers 2 and 3 in your team.

You will not earn anything for time spent surfing the internet or playing tic-tac-toe.

Question

In a given period, if Worker 1 codes 50 words, Worker 2 codes 25 words, and Worker 3 codes 75 words, what would be Worker 1's bonus?

Screen 8

Earnings

Workers 2 and 3

In Stage 2, if you are Worker 2 or 3, your wage rate in the first period of Stage 2 will be 3 pence for every word you code correctly. In addition, ONE worker will be promoted (details below) after every period in Stage 2. If you are promoted at the end of a period, your wage rate will increase by one pence over your current wage rate. If you are not promoted after a period, your wage rate in the next period will remain the same as in the period just completed.

Wage rate increases last for the rest of the experiment. Moreover, Workers 2 and 3 are able to receive multiple promotions over the course of Stage 2. That is, either Worker 2 or Worker 3 will be promoted after EACH period in Stage 2.

NOTE: Your wage rate will stay the same within each period - the promotion only affects your wage rate in the following periods.

You will not earn anything for time spent surfing the internet or playing tic-tac-toe.

Unless there are questions, please click the "Next" button.

Questions

If you are Worker 2 or Worker 3, what will your wage rate be in the first period of Stage 2?

Is Worker 1 eligible for a promotion?

Screen 9 [*This is the only instructions screen where there are differences across treatments*]

Promotions

(1) *Manager* treatment

If you are assigned the role of Worker 1, at the end of every period in Stage 2, you will choose which of the other two workers in your team will receive the promotion. You are completely free to choose which worker to promote but you can promote only one worker in each period.

When making your decision, you will be able to see which worker is in the Blue group with you, the wage rate of each worker in that period and the performance of each worker in the period.

If you are assigned the role of Worker 2 or 3, at the end of every period in Stage 2, Worker 1 will choose who will receive the promotion. Worker 1 is completely free to choose which worker to promote. The chosen worker will see his/her wage increase by one pence in the following periods.

The other worker will have the same wage rate in the next period.

(2) *Highest* treatment

At the end of every period in Stage 2, of Workers 2 and 3, the worker with the highest output will automatically receive the promotion. The chosen worker will see his/her wage increase by one pence in the following periods. Worker 1 will not be eligible for the promotion.

The other worker will have the same wage rate in the next period.

Unless there are questions, please click the "Next" button.

(3) *Random* treatment

Unless there are questions, please click the "Next" button.

At the end of every period in Stage 2, Worker 2 or 3 will be chosen at random to receive the promotion. The chosen worker will see his/her wage increase by one pence in the following periods. Worker 1 will not be eligible for the promotion.

The other worker will have the same wage rate in the next period.

Unless there are questions, please click the "Next" button.

Questions

At the end of each period in Stage 2, one worker in your group will receive a promotion. Who decides which worker will receive the promotion?

What happens if I get a promotion?

Screen 10

Internet

Regardless of your worker assignment, in each period you will have the option to play tic-tac-toe or to surf the internet.

To surf the internet or play tic-tac-toe you will press one of two buttons that will be located at the bottom of the task screen. If you click the "Surf Internet" button, an internet browser will appear. If you click the "tic-tac-toe" button, the game tic-tac-toe will start.

If you click on any of the buttons at the bottom the screen you will still be able to code words but you will have to click a "return" button that will be located at the bottom of the game screen. If you are on the internet, please make sure you minimize your browser and THEN click the "return" button.

We will not track your viewing habits or browsing history, but, as a courtesy to the other people in the room and the experimenters, if you select to surf the internet, please be careful with your browser. Do not go on any sites that you would be embarrassed to view in the library or on a close family member's computer. In other words, please limit your browsing to sites like facebook, bbc, espn, email or other "safe" websites.

Unless there are questions, please click the "Next" button.

Question

If I select to play Tic-Tac-Toe, will I be paid for my performance?

Screen 11

Tic-tac-toe instructions

Tic-tac-toe is a simple game where you play as one of two players. You will play as either the "X" player or the "O" player. Your goal is to place three of your symbols in a row, either horizontally, vertically, or diagonally. You will be playing against a **computer**.

If you get your three symbols in a row before the computer, you win. If the computer gets its three symbols in a row before you do, you lose. If neither of you is able to get three symbols in a row, the match will be a draw. You will also be able to change the difficulty of the computer player. If you click the "Easy" button, you will play against an easy computer player. Likewise, if you click the "Harder" button, you will play against a more difficult computer player. Although a ticker will keep track of your wins, losses and draws, you will not be paid for your tic-tac-toe performance.

Before we begin, we would like you to play tic-tac-toe for a minute. Use this time to become familiar with the game.

Unless there are any questions, please click the "Next" button.

Questions

During each period in stage 2, in addition to coding words, I will have the option to...

If I select to play Tic-Tac-Toe or surf the internet, can I go back to coding words?

Screen 12

Information

During each period, you will be able to see how many words you have coded correctly and how many you have coded incorrectly in the current period. This information will be continuously updated in during the coding portion of each period. In addition, you will see your wage rate and your earnings thus far in the current period.

During each period in the second stage, you will also see the wage rates and performance of the other workers in your team. You will also be able to see if any of them has chosen to not participate in the task at any time (i.e., surf the internet or play tic-tac-toe).

At the end of each period in the second stage, you will be able to see how many words you correctly coded and your resulting earnings in the period. You will also be able to see your total earnings thus far in the experiment. In addition, at the end of each period, you will be shown a summary of the performance and wage rates of the other two members of your team in that period. You will also be told which worker is in the Blue group with Worker 1.

Finally, you will also be told which worker in your team was chosen to receive the promotion and will have a higher wage rate in the next period.

Screen 13

Survey

At conclusion of the experiment you will complete a short survey. After the survey, in addition to your participation fee, you will be paid your earnings from both stages of the experiment.

Unless there are questions, we will now start the first stage.

Please click the "Begin" button.

PRACTICE STAGE

Instructions continue after practice stage.

Screen 14

Start Stage 2

You have now completed the first stage of the experiment. We will now begin the second stage.

<Worker 1>

You are Worker 1. Your role has been randomly assigned. You belong to the Blue group. One of the other workers will also belong to the Blue group.

Your wage rate is: 7 pence.

<Worker 2>

You are Worker 2 and are in the Blue group with Worker 1. The other worker is not in this group. Your role has been randomly assigned.

In period 1, your wage rate is 3 pence. If you win a promotion your wage rate will increase by one pence in the next period.

<Worker 3>

You are Worker 3 and are not in the Blue group with Worker 1. The other worker is in this group. Your role has been randomly assigned.

In period 1, your wage rate is 3 pence. If you win a promotion your wage rate will increase by one pence in the next period.

Question

How long do wage rate increases from a promotion last?

Screen 15

Stage 2 (continued)

As previously discussed, during each period in this stage, you will have the option to play tic-tac-toe or surf the internet. Each period will last 600> seconds.

At the conclusion of the last period, you will be given a short survey. After you have completed the survey, you will be paid.

Unless there are further questions, we will begin the second stage of the experiment.

Please click the "Begin" button to start the second stage of the experiment.

Question

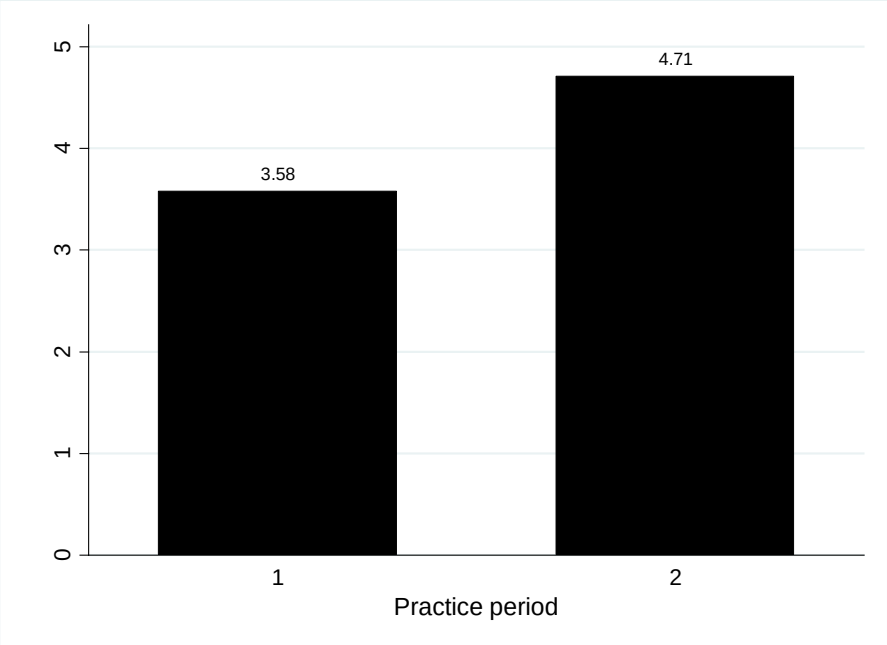
If I go back to coding words, do I still have the option to play Tic-Tac-Toe or to surf the internet?

Appendix B. Additional Analyses

B1. Testing for learning effects

We use the data from the practice stage to check if there is evidence of learning in our experiment. Figure B1 shows the average output (number of words coded correctly) by individuals in the two periods of the practice stage.

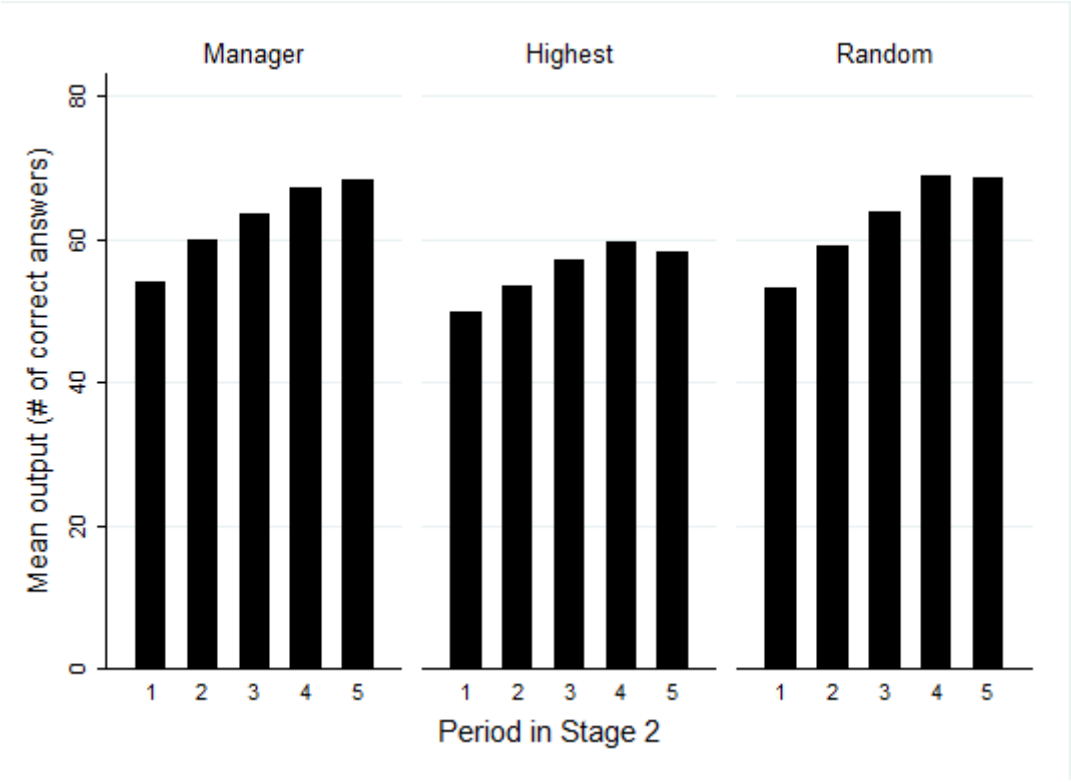
Figure B1. Learning effects in the practice stage



The mean individual output increases from 3.58 in period 1 to 4.71 in period 2. Treating all 135 subjects as individual observations (since there is no interaction among subjects in the practice stage), a Signrank test shows that the difference in average output between the two practice periods is statistically significant ($z = 8.953$, $p < 0.001$; $n = 135$).

In Stage 2 of the experiment, we look at the output, over time, of the managers in all treatments. We focus on the managers since they are the only one who face a constant wage throughout the experiment, and any changes over time can be *cleanly* attributed to learning only for them. Figure B2 shows average output of managers over the five periods in Stage 2 for managers across treatments.

Figure B2. Average output over time for worker 1 (managers) in the main stage



The figure suggests that output is increasing over time for managers in all three treatments. Table B1 presents individual panel random effects regressions separately for each treatment, of output in a period on a time trend and constant. The time trend is positive and significant at the 1% level in all three treatments.

Table B1. Individual regressions for learning effects for managers

	Treatment		
	Manager	***Highest***	***Random***
Period	3.567***	2.247***	4.033***
	(0.523)	(0.703)	(0.462)
Constant	51.98***	48.90***	50.63***
	(2.583)	(2.520)	(2.733)
Observations	75	75	75

Dep. variable: Number of words coded correctly in a period. SE clustered at group level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

We thus find evidence consistent with learning over time for managers in all treatments. [1] In all the analysis presented in the text, we thus control for time trends.

[1] While such regressions that do not control for wage levels are not strictly valid for the other workers, the finding does hold for them as well.

B2. Determinants of managers' reward decisions

We estimate individual probit regressions where the dependent variable is = 1 when an employee is awarded a raise at the end of a period and = 0 otherwise. We estimate two models. The independent variables in model (1) are the difference in output between the employee and the other employee in the group in that period, the number of raises received by the employee up to that period, period dummies and a constant. The number of raises received thus far captures the current wage (piece-rate) of the employee. In model (2), we instead include a more direct measure of wage – we replace the number of raises with the difference in current wage between the employee and the other employee in the group. The probit estimates are presented in Table B2.

Table B2. Determinants of raises in the *Manager* treatment - Probits

	(1)	(2)
Difference in output	0.031^{***}	0.033^{***}
	(0.011)	(0.011)
# raises received up to this period	-0.764^{***}	-
	(0.294)	
Difference in wage	-	-0.394^{***}
		(0.147)
Constant	0.382^{***}	2.38×10^{-17}
	(0.147)	(2.82×10^{-17})
Observations	120	150

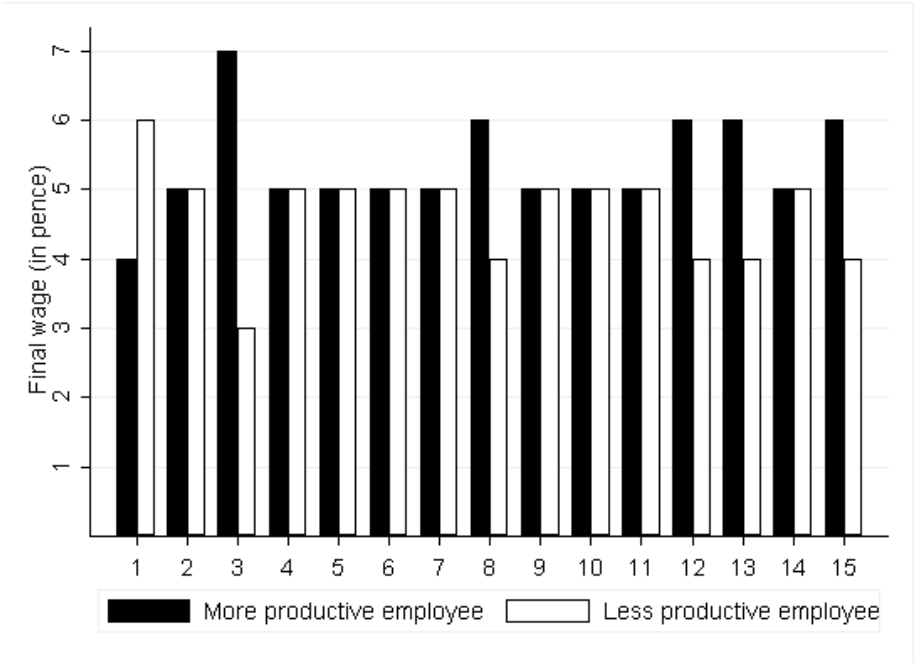
Dep. variable = 1 if promoted in a round and = 0 otherwise. SE clustered at group level in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Includes period dummies (not reported).

The regression estimates suggest that, while the workers with the higher output are more likely to receive a raise at the end of a period, the manager balances this by reducing the likelihood of a reward in order to equalise wages between the workers. It thus appears that managers' behaviour is consistent with inequity aversion.

B3. Heterogeneity in reward decisions of *Managers*

Analysis in the main text shows that more and less productive employees receive, on average, the same final wage. We explore the pattern of raises in individual groups in *Manager* to check if *all* (or at least most) managers equalise wages. Figure B3 presents the final wages of more and less productive employees in each group in *Manager*.

Figure B3. Final wages of employees in teams in *Manager*



Based on the figure, we identify four types of managers.

1. **Completely equalising (9 out of 15 managers)**: Most managers equalise wages of the two employees by the end of the experiment. This is despite the fact that one of the employees had the higher output in *at least* 3 out of 5 periods, i.e., it was not the case that each employee had the higher output in an equal number of periods.

2. **Completely meritocratic (3 out of 15 managers)**: The manager in Group 3 is completely meritocratic in that the more productive employee receives all 4 promotions, and wage increases. Upon closer inspection of output over time within groups, we find that managers in Group 1 and Group 15 are also completely meritocratic in awarding promotions.

Recall that our definition of a more (less) productive employee depends on relative performance in the first period alone. The 'more productive' employee in Group 1 had the

higher output in the group in the first period alone, while the 'less productive' employee had the higher output in the remaining periods. Similarly, in Group 15, the 'less productive' employee had the higher output in one round, while the 'more productive' employee had the higher output in the other rounds. Thus, the pattern of final wages in Groups 1 and 15 is consistent with the promotion being awarded to the employee with the highest output in a period.

3. **Mostly meritocratic (2 out of 15 managers)**: There are two managers (Groups 12 and 13) where the more productive employee receives more (3 out of 4) promotions. In both groups, the 'more productive' employee has the higher output in all 5 periods. Nevertheless, the less productive employee is promoted once.

4. **Other (1 out of 15 managers)**: In Group 8, the 'less productive' employee has the higher output in 2 out of the first 4 periods, but receives only one wage increase.

B4. Tobit and OLS regressions

Table 2 in the main text reports estimates from Poisson regressions. Table B4 below reports OLS and Tobit estimates of the same regression models. The results are qualitatively the same.

Table B4. Regressions - social preferences of the manager

	Tobit		OLS	
Dictator allocation	-0.124**	-	-0.091***	-
	(0.048)		(0.027)	
Others' well-being	-	-0.033**	-	-0.033**
		(0.012)		(0.012)
Constant	9.074***	5.641***	7.419***	5.588***
	(2.287)	(0.826)	(1.141)	(0.766)
Observations	15	15	15	15

Dep. variable = # raises awarded to the more productive employee. Robust SE in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

B5. Impact of raises on productivity boost

Table B5. Mean (st dev) boost in output from one period to the next

(A) ***Manager***

Productivity level	Obs.	Received raise last period? Yes	No	Signrank p-value
Lower	15	2.30	2.87	0.6377
		(3.87)	(4.18)	
Higher	15	3.87	3.35	0.4510
		(2.44)	(5.25)	
Signrank p-value		0.1861	0.6374	

(B) ***Highest***

Productivity level	Obs.	Received raise last period? Yes	No	Signrank p-value
Lower	15	2.12	3.86	0.1282
		(3.63)	(4.39)	
Higher	15	2.42	6.24	0.2076
		(2.69)	(5.14)	
Signrank p-value		0.8658	1.000	

(C) ***Random***

Productivity level	Obs.	Received raise last period? Yes	No	Signrank p-value
Lower	15	5.75	2.87	0.3073
		(7.05)	(3.65)	
Higher	15	4.74	2.29	0.2548
		(4.09)	(3.97)	
Signrank p-value		0.9063	0.4792	

Wilcoxon signrank tests show that the average increase in output from one period to the next is not significantly different between the more and less productive (based on the first period in Stage 2) employees. Further, this is the case regardless of whether they received a raise at the end of the previous period. This is not surprising given that workers face high-powered incentives.