

Technical Appendix to DISCRIMINATION IN THE LABOUR MARKET: THE CURSE OF COMPETITION BETWEEN WORKERS

Thomas de Haan, Theo Offerman and Randolph Sloof

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Appendix C. Instructions for the Experiment

This Appendix contains the instructions used in the Competition treatment of the experiment, both for employers and for workers. The instructions used in the No Competition treatment are similar.

C.1. Instructions for Employers in Competition

Welcome to this experiment on decision-making. Please read the following instructions carefully. As soon as everyone has finished reading the instructions you will receive a handout with a summary. During the experiment you will be asked to make a number of decisions. Your decisions and those of other participants will determine your earnings. At the start of the experiment, you will receive a starting capital of 900 points. In addition you will earn money with your decisions. The experiment consists of 50 rounds. During the experiment, your earnings will be denoted in points. Your earnings in the experiment equal the sum of the starting capital and your earnings in the 50 rounds. At the end of the experiment, your earnings in points will be transferred into money. For each point you earn, you will receive 1 euro cent. Hence, 100 points are equal to 1 euro. Your earnings will be privately paid to you in cash.

ROLES

Some participants have the role of EMPLOYER, some participants perform the role of PURPLE WORKER and some have the role of GREEN WORKER. In all 50 rounds, you keep the same role and, if you are a worker, the same colour.

Your role is: EMPLOYER

DECISIONS

In each round, each employer is matched with a GREEN and a PURPLE worker. The employer decides to hire either nobody, the green worker or the purple worker. The employer thus cannot hire both workers at the same time. The employer receives a positive payoff if s/he hires a worker who invested in her/his productivity, but receives a negative payoff if s/he hires a worker who did not invest in her/his productivity. If the employer hires nobody, s/he receives a small positive payoff. A worker earns a positive payoff if s/he is hired. If a worker is not hired, s/he earns a small positive payoff. S/He incurs a COST if s/he invests in her/his productivity, independently of whether or not s/he is hired. At the time the employer has to make the hiring decision, s/he is not informed about the investment decisions of the two workers. Instead, s/he receives a signal of the green worker and a signal of the purple worker that corresponds to the investment decisions of these workers in the following way.

If the worker invested, her/his signal is HIGH with probability 75% and it is LOW with probability 25%. If the worker did not invest, her/his signal is HIGH with probability 25% and it is LOW with probability 75%. So the signal is often but not always in agreement with the

investment decision. The worker's probability that a signal is high or low does not depend on any other worker's probability that her/his signal was high or low. Also, the probability that a worker's signal is high or low is independent of decisions made by the worker in any previous round.

At the start of a round, each worker is informed of the own COST of investing. This cost will be a random number between 0 and 100 points. Each of these numbers is equally likely. In each round, every worker is assigned a new (and independent) cost level. Therefore, the different workers (most likely) have different costs in a round, and the same worker (most likely) has different costs across rounds.

PAYOFFS

The workers' investment decisions and the employer's hiring decision lead to the following payoffs:

- (i) Payoff employer after hiring = 60 if hired worker invested.
- (ii) Payoff employer after hiring = -40 if hired worker did not invest.
- (iii) Payoff employer after not hiring = 20 (independent of workers' investment decisions).
- (iv) Payoff worker after investing = 160 - cost if hired by employer.
- (v) Payoff worker after investing = 10 - cost if not hired by employer.
- (vi) Payoff worker after not investing = 160 if hired by employer.
- (vii) Payoff worker after not investing = 10 if not hired by employer.

Notice that there are no differences in the rules for green and purple workers. In particular, there are no differences in the green worker's and purple worker's probabilities of good and bad signals. Also, the cost of investing is determined with the same procedure for the two groups of workers and the payoffs are also determined in exactly the same way.

SEQUENCE OF EVENTS

Summarising, each round is characterised by the following sequence of events:

- 1 The workers are privately informed of the own cost of investment.
- 2 Each worker decides whether or not to invest.
- 3 The employer observes a high or low signal for each worker, but not the workers' investment decisions.
- 4 The employer decides to hire nobody, the green worker or the purple worker. Then employer and workers receive payoffs based on the choices made.

MATCHING PROCEDURE

In each round, each employer will be randomly matched to another green worker and another purple worker. You will never learn with whom you are matched. The random matching scheme is chosen such that three participants will never be coupled again in two subsequent rounds.

INFORMATION END OF ROUND

At the end of a round, each participant will be informed of the choices of the participants with whom s/he is matched and the own payoff.

HISTORY OVERVIEW

The lower part of the screen provides an overview of the results of all rounds already completed. Apart from your own results in the previous rounds, the history overview also contains the results of three other employers. In total, you are thus informed about the past results of the same group of four employers (one of which is yourself) and eight workers. Below you see an example of the history overview (with arbitrary numbers).

Signal High			
	Purple	Green	Total
Invest	6 50%	7 100%	13 68%
Not Invest	6 50%	0 0%	6 32%
	100%	100%	100%
+			
Signal Low			
	Purple	Green	Total
Invest	3 25%	4 24%	7 24%
Not Invest	9 75%	13 76%	22 76%
	100%	100%	100%
+			

The upper part of the history overview shows what happened in the cases where employers received a HIGH signal. The row INVEST lists the number of cases in which the worker's signal was HIGH after investing. The row NOT INVEST lists the number of cases in which the worker's signal was HIGH after not investing. In the first purple column, the results for only the purple workers are listed and in the second green column, the results for only the green workers are listed. In the final column, the results of the two groups of workers are combined. In each cell, after the number, the corresponding percentage is listed. The lower part of the history overview summarises the previous choices of workers whose signal was LOW. (Workers observe a history overview that is organised in another way: they observe the number of times purple, green and combined workers are hired, separated for having made an investment or not.)

C.2. Instructions for Workers in Competition

Welcome to this experiment on decision-making. Please read the following instructions carefully. As soon as everyone has finished reading the instructions, you will receive a handout with a summary. During the experiment, you will be asked to make a number of decisions. Your decisions and those of other participants will determine your earnings. At the start of the experiment, you will receive a starting capital of 900 points. In addition, you will earn money with your decisions. The experiment consists of 50 rounds. During the experiment, your earnings will be denoted in points. Your earnings in the experiment equal the sum of the starting capital and your earnings in the 50 rounds. At the end of the experiment, your earnings in points will be transferred into money. For each point you earn, you will receive 1 euro cent. Hence, 100 points are equal to 1 euro. Your earnings will be privately paid to you in cash.

ROLES

Some participants have the role of EMPLOYER, some participants perform the role of PURPLE WORKER and some have the role of GREEN WORKER. In all 50 rounds, you keep the same role and, if you are a worker, the same colour.

Your role is: WORKER

You will learn at the start of the experiment whether you are a green or purple worker

DECISIONS

In each round, each employer is matched with a GREEN and a PURPLE worker. The employer decides to hire either nobody, the green worker or the purple worker. The employer thus cannot hire both workers at the same time. The employer receives a positive payoff if s/he hires a worker who invested in her/his productivity, but receives a negative payoff if s/he hires a worker who did not invest in her/his productivity. If the employer hires nobody, s/he receives a small positive payoff. A worker earns a positive payoff if s/he is hired. If a worker is not hired, s/he earns a small positive payoff. S/He incurs a COST if s/he invests in her/his productivity, independently of whether or not s/he is hired. At the time the employer has to make the hiring

decision, s/he is not informed about the investment decisions of the two workers. Instead, s/he receives a signal of the green worker and a signal of the purple worker that corresponds to the investment decisions of these workers in the following way.

If the worker invested, her/his signal is HIGH with probability 75% and it is LOW with probability 25%. If the worker did not invest, her/his signal is HIGH with probability 25% and it is LOW with probability 75%. So the signal is often but not always in agreement with the investment decision. The worker's probability that a signal is high or low does not depend on any other worker's probability that her/his signal was high or low. Also, the probability that a worker's signal is high or low is independent of decisions made by the worker in any previous round.

At the start of a round, each worker is informed of the own COST of investing. This cost will be a random number between 0 and 100 points. Each of these numbers is equally likely. In each round, every worker is assigned a new (and independent) cost level. Therefore, the different workers (most likely) have different costs in a round, and the same worker (most likely) has different costs across rounds.

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MATCHING PROCEDURE

In each round, each employer will be randomly matched to another green worker and another purple worker. You will never learn with whom you are matched. The random matching scheme is chosen such that three participants will never be coupled again in two subsequent rounds.

INFORMATION END OF ROUND

At the end of a round, each participant will be informed of the choices of the participants with whom s/he is matched and the own payoff.

HISTORY OVERVIEW

The lower part of the screen provides an overview of the results of all rounds already completed. Apart from your own results in the previous rounds, the history overview also contains the results of seven other workers. In total, you are thus informed about the past results of the same group of eight workers (one of which is yourself) and four employers. Below you see an example of the history overview (with arbitrary numbers).

Invest			
	Purple	Green	Total
Hired	5 56%	7 64%	12 60%
Not Hired	4 44%	4 36%	8 40%
	100%	100%	100%
+			
Not Invest			
	Purple	Green	Total
Hired	3 20%	2 15%	5 18%
Not Hired	12 80%	11 85%	23 82%
	100%	100%	100%
+			

The upper part of the history overview shows what happened in the cases where workers chose to INVEST. The row HIRED lists the number of cases in which the employer decided to hire a worker after investing. The row NOT HIRED lists the number of cases in which the employer decided to not hire a worker after investing. In the first purple column, the results for only the purple workers are listed and in the second green column, the results for only the green workers are listed. In the final column, the results of the two groups of workers are combined. In each cell, after the number the corresponding percentage is listed. The lower part of the history overview summarises the previous choices of employers after a worker did not invest in exactly the same way. (Employers observe a history overview that is organised in another way: they observe the number of investments and non-investments of purple, green and combined workers, separated for the signal being high and the signal being low.)