Age, Effort Choices, and Peer Comparisons in an Intergenerational Working Context

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Motivation and Research Questions

- Effects associated to the demographic change
- Labour market pressed by the relatively lower supply of younger workers.

→ Analyse age related differences within the labor market in terms of effort choices.

- How do younger and older employees respond to their (i) own and their (ii) co-worker's salary under different payment schemes?
- What is the impact of the firm's age composition on effort choices?

Related Literature

On productivity in the labor market

- Fair Wage Hypothesis (Akerlof 1984; Akerlof and Yellen 1990)

On the effect of peer wages

- No evidence to prove that workers effort choices would depend on co-workers' wage (Charness and Kuhn, 2004)
- Co-workers' wage comparisons highly influence workers' effort choices (Gächter and Thöni, 2010; Gächter et al., 2012)

On firm performance and age composition

- No conclusive evidence for an effect in either direction (Cataldi et al., 2012; Grund and Westergård-Nielsen, 2005; Hamilton et al., 2003; Malmberg et al., 2005; Wasmer, 2011)

- Job performance decreases after the age of 50 (Skirbekk 2004)

Related Literature

On age:

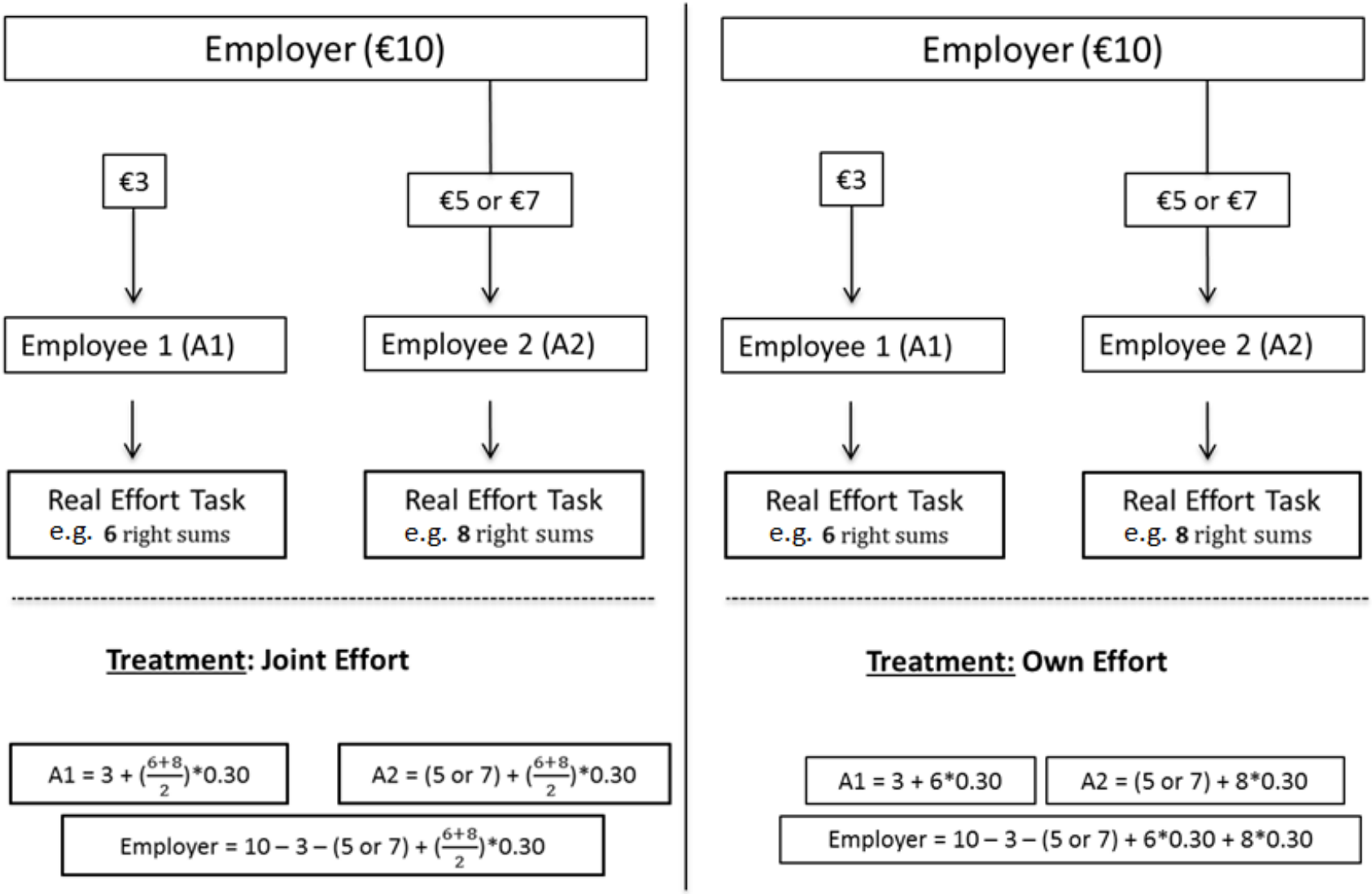
- Decision making seems not impaired by age (Kovalchik et al. 2005)
- Older people seem to care more about sharing equally (Güth et al., 2002).
- Compared to procedures, outcomes are relatively more important for the younger cohort (Sutter, 2007)
- Trustworthiness prevails in all age groups;
  younger seem more trusting;
  there is more trust within the same age group (Holm and Nystedt 2005)

Related Literature

On age, effort, and cooperation

- Charness and Villeval (2009) – in a public good experiment with participants belonging to two different age groups, found that:
  - both juniors and seniors react to the competitiveness of the environment and there is no significant difference in performance in the real-effort task across the generations when they are competing
  - seniors are typically more cooperative than juniors in a team-production game.

Design

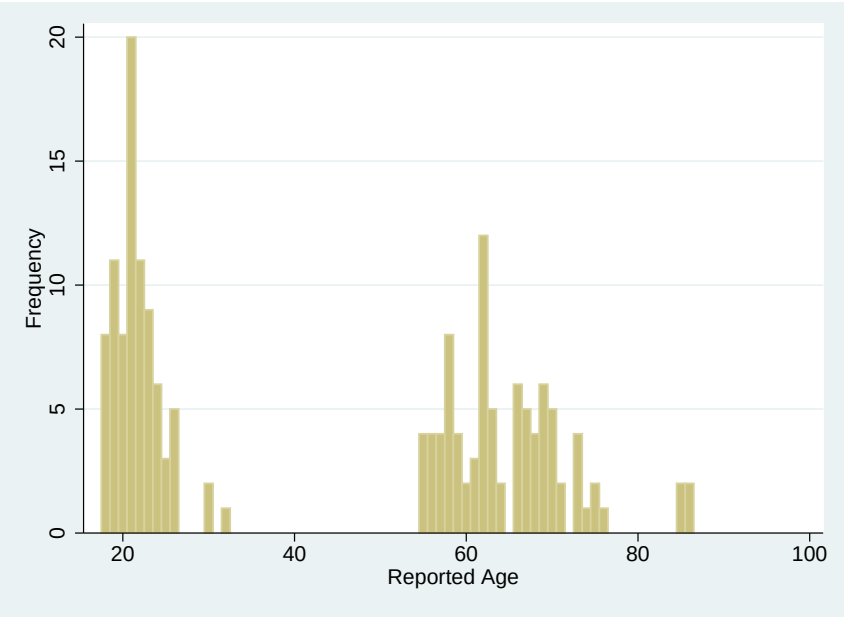

Employer (€10)
€3
€5 or €7
Employee 1 (A1)
Employee 2 (A2)
Real Effort Task
e.g. 6 right sums
Real Effort Task
e.g. 8 right sums
Treatment: Joint Effort
A1 = 3 + ((6+8)/2)*0.30
A2 = (5 or 7) + ((6+8)/2)*0.30
Employer = 10 – 3 – (5 or 7) + ((6+8)/2)*0.30
Employer (€10)
€3
€5 or €7
Employee 1 (A1)
Employee 2 (A2)
Real Effort Task
e.g. 6 right sums
Real Effort Task
e.g. 8 right sums
Treatment: Own Effort
A1 = 3 + 6*0.30
A2 = (5 or 7) + 8*0.30
Employer = 10 – 3 – (5 or 7) + 6*0.30 + 8*0.30

Experimental procedure

- After joint instruction phase participants are guided to separate soundproof booths
- Experiment is run computerized with zTree
  - Training in the real effort task / measurement of baseline productivity
  - Principals are informed about the age-groups of their agents and decide on wage
  - Agents are informed about their wage and their co-workers wage and age-group
  - Agents exert effort – no feedback
  - Re-matching and repeat with other payment scheme, roles remain fixed
  - Social preferences and risk attitude test
  - Questionnaire
- Private payment of earnings (9.50 to 17.35, mean 13 Euro)

The sample

- 192 participants invited via newspaper ads – no one participated in an experiment before
- results in 64 ‘firms’



- half is between 18 and 26 years, remaining half is 55+ years old
- 2/3 of “younger” are students; 2/3 of “older” are retired

Wage setting behavior is independent of

- the payoff specification.
- the firm's age composition.
- the employee's age group.
- the employer's age group.
- ($p>0.56$)

- In 1/3 of all cases the high wage was chosen.

Joint vs Own Effort:
Seniors and Juniors adjust their performance level to the different payoff specifications differently.

- Despite a non-significant difference in training performance, Juniors perform better.
- Average performance under joint effort is lower ($p<0.01$).

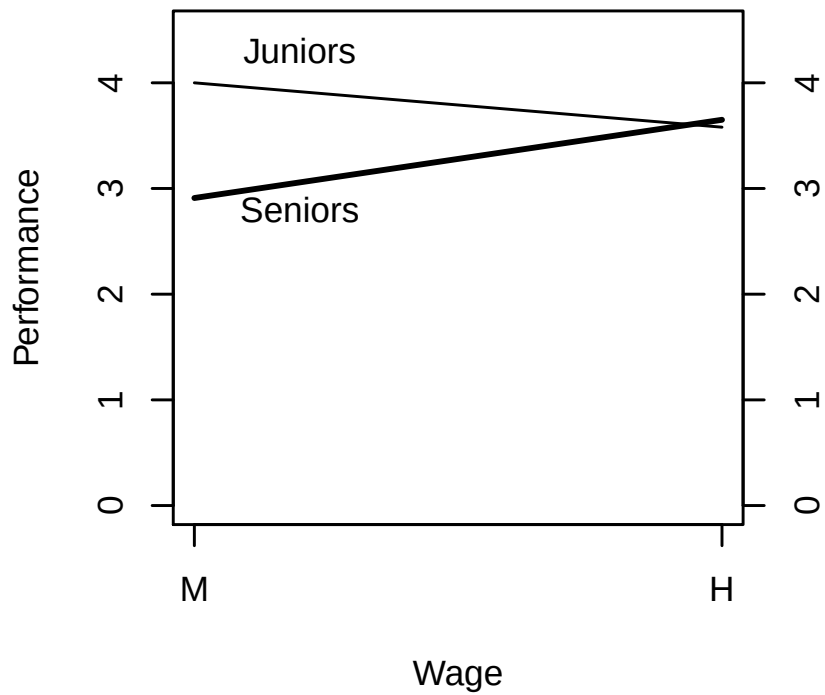
Juniors	w_2^L	w_2^M	w_2^H
Joint Effort	4.30	3.53	2.95
Own Effort	3.94	4.44	4.28
p-value	*0.43*	*0.14*	*0.05*

Seniors	w_2^L	w_2^M	w_2^H
Joint Effort	2.64	2.73	3.67
Own Effort	3.71	3.11	3.64
p-value	*0.01*	*0.30*	*0.97*

- Juniors perform better under the own effort payoff specification if their wage is set by the employer.
- Seniors perform better under the own effort payoff specification if their wage is set by the experimenter.

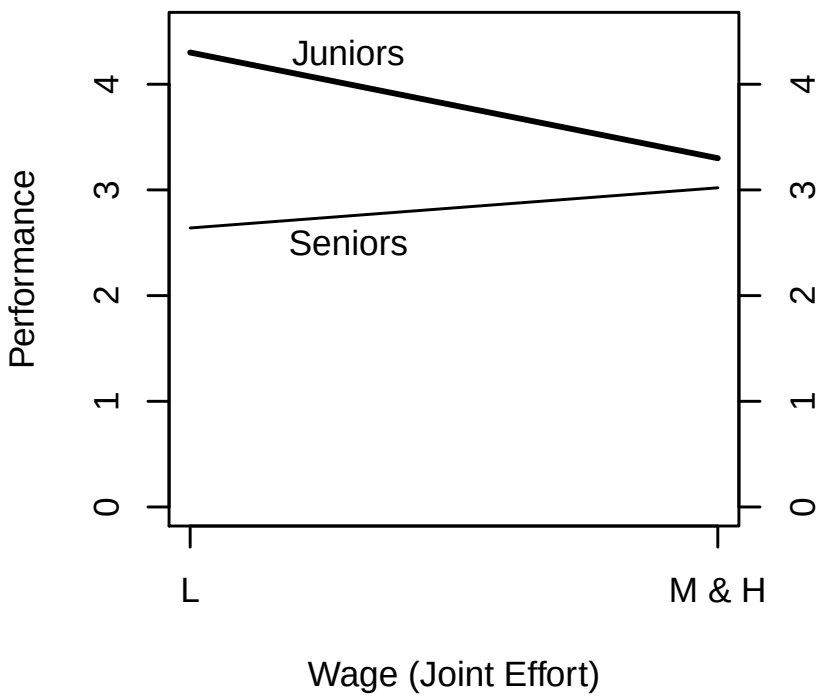
Gift Exchange:
Seniors respond with higher efforts to the high wage.
Juniors do not.

- Seniors perform 24% better (0.7 good sums) if they get the higher wage (p=0.04), Juniors do not (p=0.38).



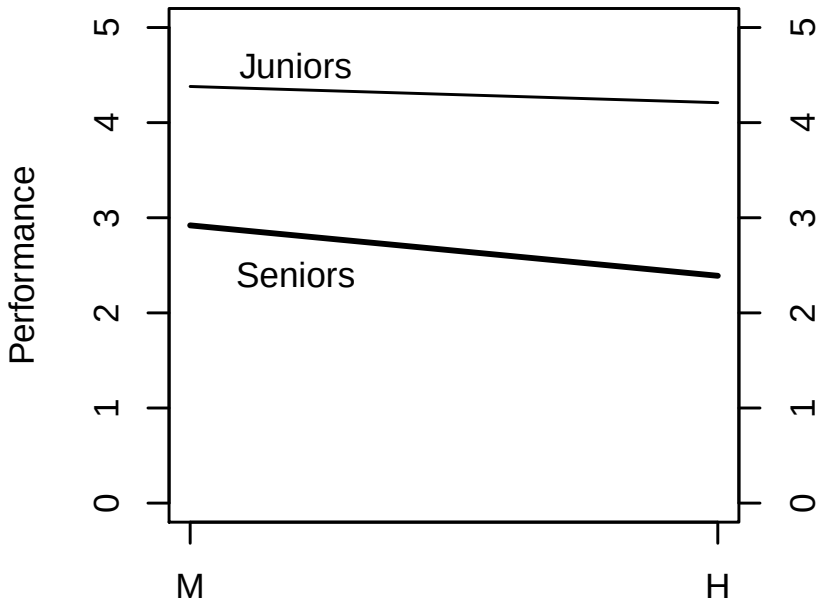
Juniors and Seniors respond differently when wages are set by the experimenter compared to when wages are set by the employer.

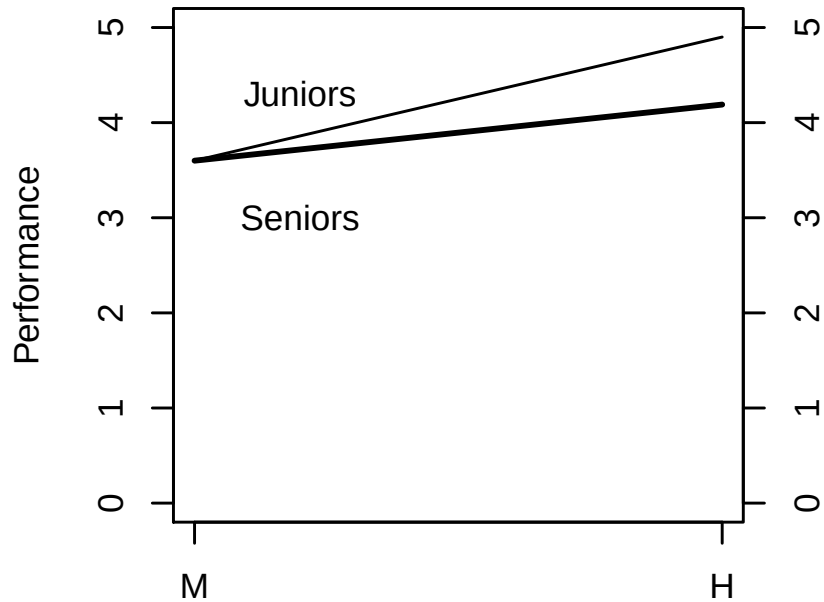
- In the joint effort payoff specification, juniors exert a lower effort under w_2^M or w_2^H compared to w_2^L (p=0.01). No differences are found for seniors, and own effort.



Peer Wages & Inequity:
We observe performance adjustments to peer wages consistent with inequity aversion.

- Under Own Effort a higher peer wage induces a higher performance increase than under Joint Effort (p=0.03, one-sided).
- There are no significant performance effects with respect to the peer wage under Joint Effort (p=0.29).



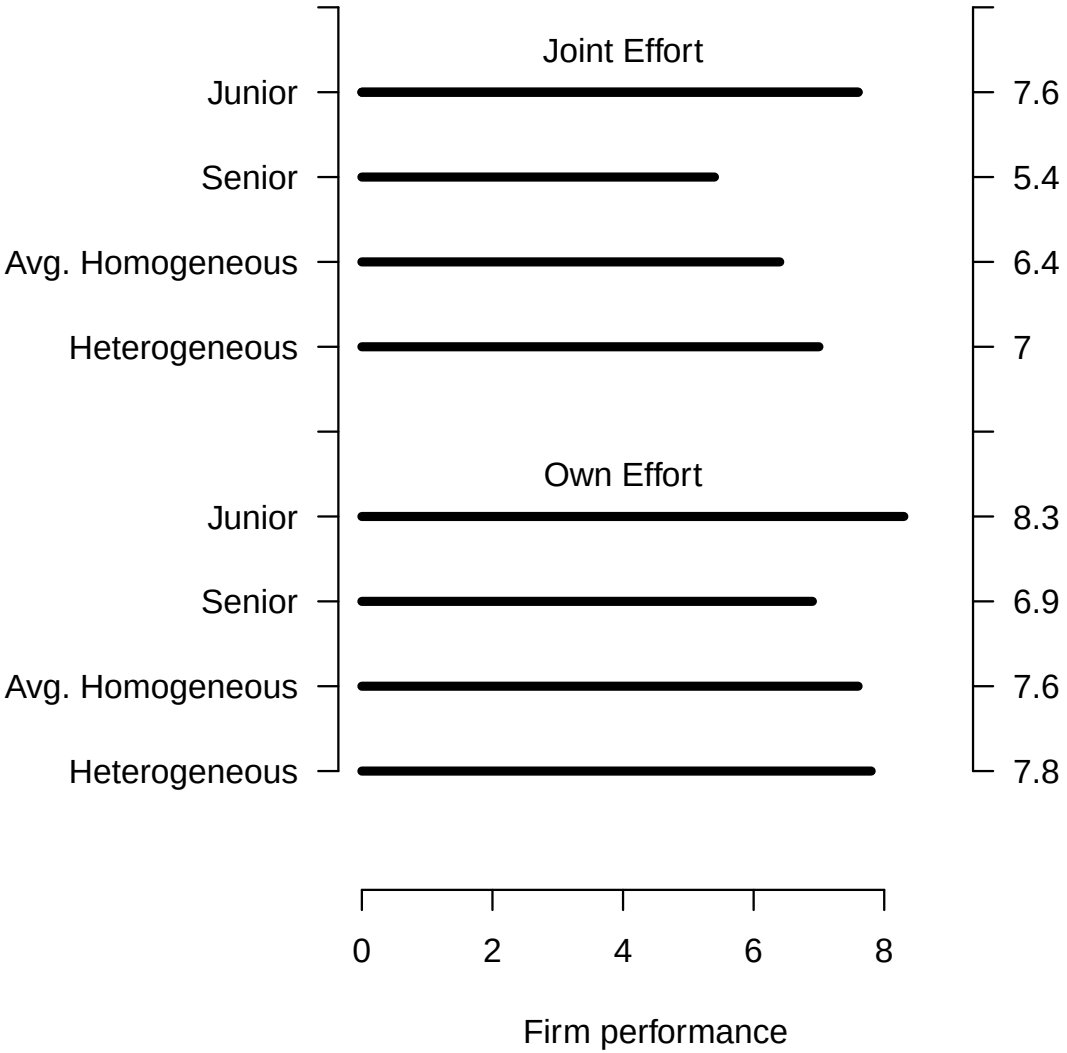


Didn't we expect a stronger impact of other regarding preferences for Seniors?

- In contrast to, e.g., the study of Güth et al (2002),
  there is no difference in the distribution of distributional preferences (Kerschbamer 2012) in our sample (p=0.63)
- There is even indication for the younger cohort being more concerned about inequity.

→ One (ESS) survey item supports this idea:
"government should reduce differences in income levels"
proportion of juniors agreeing with the statement is much higher than the proportion of seniors (p=0.02).

Firm performance:
Firms with interdependent production technologies should avoid age homogeneous senior teams



Seniors perform better in age heterogeneous teams.

Conclusion & Outlook

- Seniors seem to be more likely to exhibit reciprocal behavior.
- Juniors and Seniors' effort choices seem consistent with horizontal inequity aversion in earnings.
- Seniors' performance (cooperativeness) increases in age heterogeneous environments.

- Use of other real effort tasks that require different skills, e.g. anagram solving
- Multi-tasking
- Use of further incentive schemes, e.g. tournaments