

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

Micaela M. Kulesz
Dennis A. V. Dittrich

Jacobs University Bremen

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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:

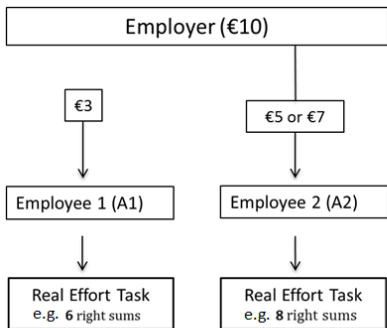
- ▶ Decision making seems not impaired by age (Kovalchik et al. 2005)
- ▶ Older people seem to care more about sharing equally (Güth et al., 2002).
- ▶ Compared to procedures, outcomes are relatively more important for the younger cohort (Sutter, 2007)
- ▶ Trustworthiness prevails in all age groups;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

Related Literature

On age, effort, and cooperation

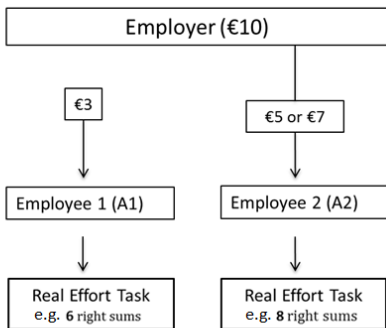
- ▶ Charness and Villeval (2009) – in a public good experiment with participants belonging to two different age groups, found that:
 - ▶ both juniors and seniors react to the competitiveness of the environment and there is no significant difference in performance in the real-effort task across the generations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

Design



Treatment: Joint Effort

$$A1 = 3 + \left(\frac{6+8}{2}\right) * 0.30$$
$$A2 = (5 \text{ or } 7) + \left(\frac{6+8}{2}\right) * 0.30$$
$$\text{Employer} = 10 - 3 - (5 \text{ or } 7) + \left(\frac{6+8}{2}\right) * 0.30$$



Treatment: Own Effort

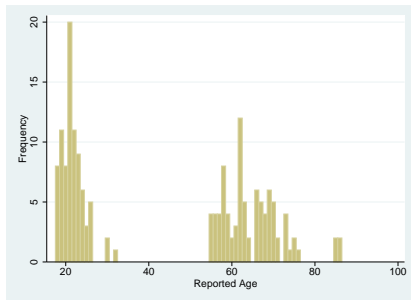
$$A1 = 3 + 6 * 0.30$$
$$A2 = (5 \text{ or } 7) + 8 * 0.30$$
$$\text{Employer} = 10 - 3 - (5 \text{ or } 7) + 6 * 0.30 + 8 * 0.30$$

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
<i>p-value</i>	<i>0.43</i>	<i>0.14</i>	<i>0.05</i>

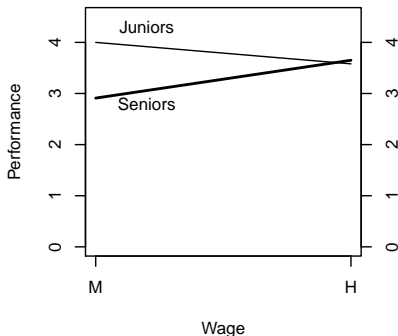
Seniors	w_2^L	w_2^M	w_2^H
Joint Effort	2.64	2.73	3.67
Own Effort	3.71	3.11	3.64
<i>p-value</i>	<i>0.01</i>	<i>0.30</i>	<i>0.97</i>

- ▶ 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:

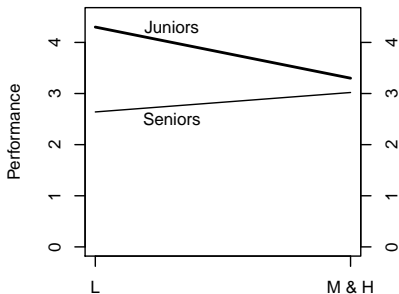
Seniors respond with higher efforts to the high wage.
Juniors do not.

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

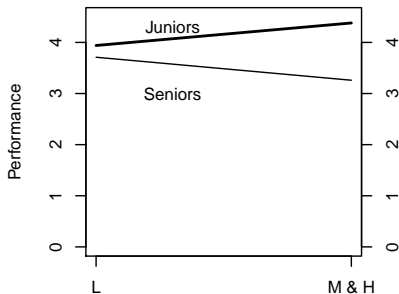


Juniors and Seniors respond differently when wages are set by the experimenter compared to when wages are set by the employer.

- ▶ 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.



Wage (Joint Effort)

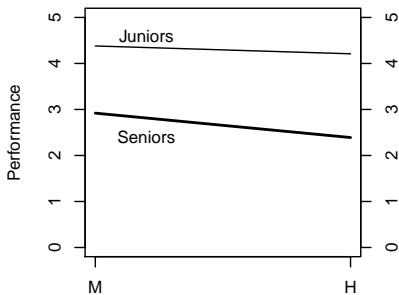


Wage (Own Effort)

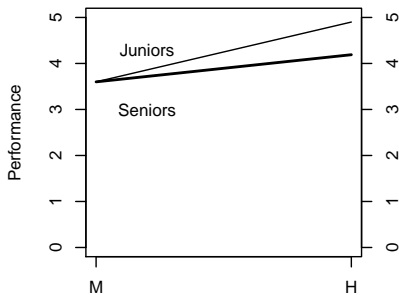
Peer Wages & Inequity:

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 ($p=0.29$).



Peer Wage (Joint Effort)



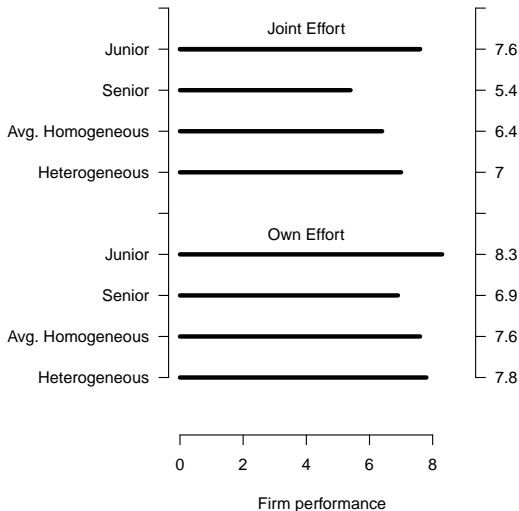
Peer Wage (Own Effort)

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