

Difficult Merits

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Meritocracy

- Income inequality based on pure luck is unfair, merit-based inequality is fair (Almås et al., 2010; Durante et al., 2014; Cappelen et al., 2017)
- Papers looking behind merit:
 - Small differences in merit justify large inequality (Cappelen et al., 2017)
 - People reward merit, even if incentives were unequal (Andre, 2021)
- **This paper:** Do people compensate for difficulties in producing when rewarding merit?
- Same task is not equally difficult for everyone:
 - Differences in external circumstances
 - Differences in ability in the task
- Pre-registered online experiment on Prolific.co with 500 participants from the US

Outline

- 1 Experiment design
- 2 Reduced-form results
- 3 Fairness preference types

Experiment design

Core structure

- 1 **Production** - doing a simple task for 15 minutes
 - Earnings based on production
- 2 **Redistribution** - redistribute earnings from the Production part
 - Treatment variation: role of decisionmaker (spectator or stakeholder)

Two separate treatments: *task length* and *ability*.

Production

- Task: Benndorf et al. (2018). ▶ Task
 - Task length treatment: 2, 3, 4-letter tasks
 - Ability treatment: 3-letter tasks
- ① 10 tasks to measure how fast they can do them
 - Compute tasks/minute (θ)
- ② 15 minutes of task to measure production (x)
 - Income from first part: $10x$

▶ Self-reported effort▶ Effort and production

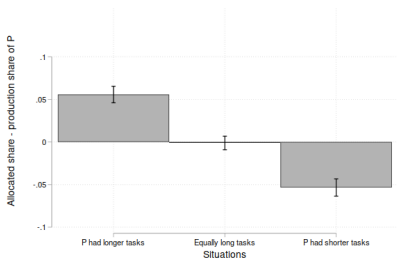
Redistribution

- Redistribute joint income in random pairs
- Two roles: *spectator* and *stakeholder*
- Decision-makers know everything: production, group, avg. tasks/min in group
 - ▶ Decision screen
 - Group = task length (long, medium, short) or ability tercile (low, medium, high)
- Strategy method: 10 decisions per person

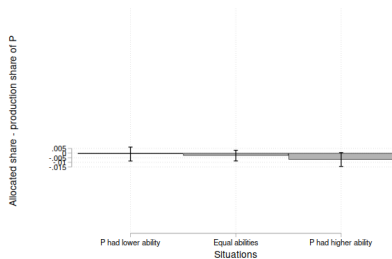
Reduced-form results

Reduced-form results - spectator decisions

Excess income share to a random participant in the pair:



(a) Task length treatment



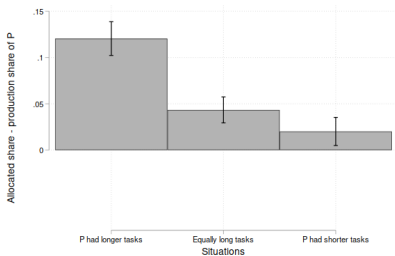
(b) Ability treatment

▸ Regressions

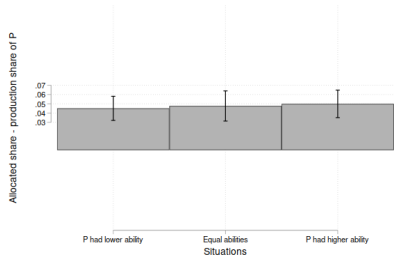
▸ By group

Reduced-form results - stakeholder decisions

Excess income share to self in the pair:



(a) Task length treatment



(b) Ability treatment

▸ Regressions

Fairness preference types

Fairness types to distinguish

Using the descriptive model of Cappelen et al. (2010)

Share of income given to P1 by a spectator with fairness preference type k :

- *Meritocratic*: accepts inequality based on merit

$$s_1^k(\mathbf{x}, \theta) = \frac{x_1}{x_1 + x_2}$$

- *Egalitarian*: does not accept any inequality

$$s_1^k(\mathbf{x}, \theta) = \frac{1}{2}$$

I add a third type:

- *Meritocratic who compensates for (external or internal) difficulties*:

$$s_1^k(\mathbf{x}, \theta) = \frac{x_1/\theta_1}{x_1/\theta_1 + x_2/\theta_2}$$

where x_i = production, θ_i = avg tasks/min of i -s group

Categorization of types

Individual categorization

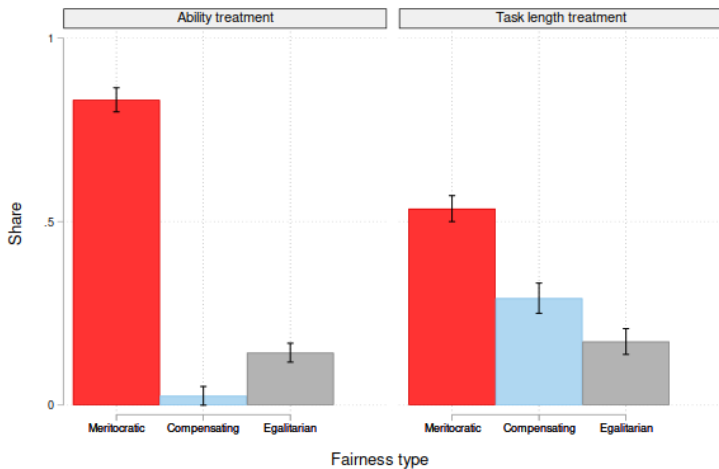
- Everyone made 10 decisions, participant j 's type:

$$\text{type}_j = \arg \min_k (t_{1,j} - t_{1,k})^2 + (t_{2,j} - t_{2,k})^2 + \dots + (t_{10,j} - t_{10,k})^2$$

where $k =$ Meritocratic, Egalitarian, or Compensating meritocrat

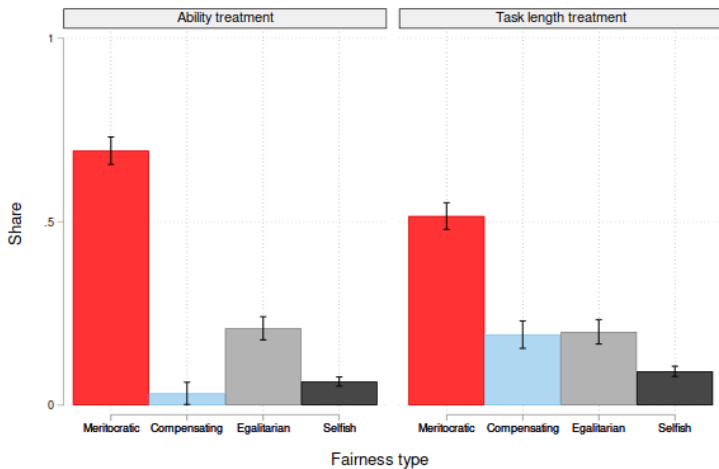
- Compute the share of each type separately for task length and ability, spectators and stakeholders
 - For stakeholders I add a fully selfish category

Types of spectators



Note: The bars show 95 percent confidence intervals using bootstrapped standard errors.

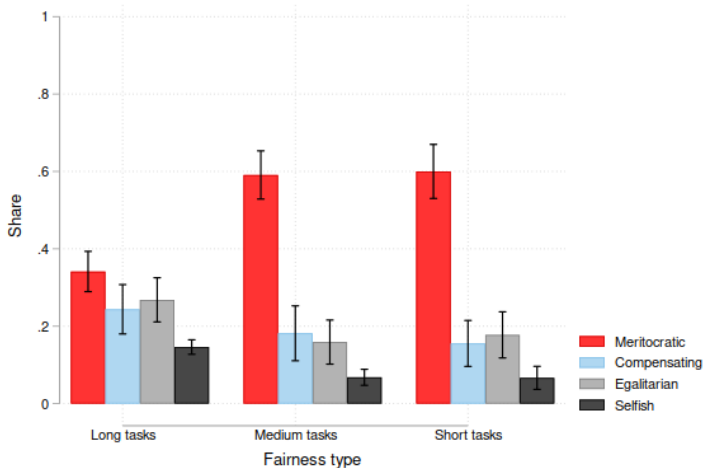
Types of stakeholders



Note: The bars show 95 percent confidence intervals using bootstrapped standard errors.

Self-serving fairness choice of stakeholders

By own task length:



Note: The bars show 95 percent confidence intervals using bootstrapped standard errors.

Discussion

- People compensate for external difficulties but not for ability differences
 - Even though both are arguably exogenous – people seem to draw the line between external-internal characteristics
- Self-serving fairness choice for stakeholders (similarly to Deffains et al., 2016; Fehr and Vollmann, 2020)
 - To learn more about stakeholders, working on a structural estimation of fairness types based on Mollerstrom et al. (2015)

References

- Almås, Ingvild, Alexander W. Cappelen, Erik Ø. Sørensen, and Bertil Tungodden**, "Fairness and the Development of Inequality Acceptance," *Science*, 2010, 328 (5982), 1176–1178.
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- , **Holger Andreas Rau, and Christian Sölch**, "Minimizing Learning Behavior in Experiments with Repeated Real-Effort Tasks," *SSRN Electronic Journal*, 2014, (343).
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- Durante, Ruben, Louis Putterman, and J. van der Weele Joël**, "Preferences for redistribution and perception of fairness: An experimental study," *Journal of the European Economic Association*, 2014, 12 (4), 1059–1086.
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Task

Task

Time left to complete this page: 1:50

Word:

J

G

O

Code:

Submit

X	P	U	I	H	G	K	D	S	L	A	B	F	Q	T	E	N	J	R	O	C	Y	M	W	V	Z
750	670	347	340	626	444	268	312	264	841	746	833	524	732	557	697	127	861	358	911	118	297	847	767	619	415

Note: Benndorf et al. (2014) task, code from Volker Benndorf's GitHub

▶ Back

Decision screen

In the first part, **Participant 1** earned **320 tokens**, while **Participant 2** earned **670 tokens**.
How would you distribute the **total income of 990 tokens** between Participant 1 and Participant 2?

Participant 1

Production: 32

Task length: long (3.5 tasks/minute)

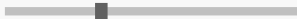
Participant 2

Production: 67

Task length: short (7.1 tasks/minute)

Tokens to Participant 1:

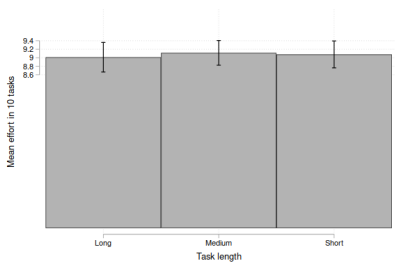
Tokens to Participant 2:

320  670

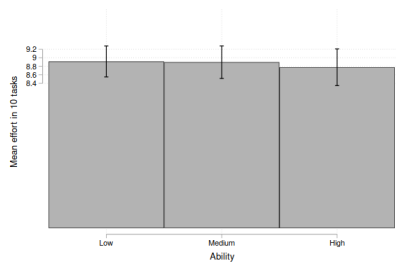
Next

▶ Back

Self-reported effort in 10 tasks



(a) Task length treatment



(b) Ability treatment

▶ Back

Effect of group and effort on production

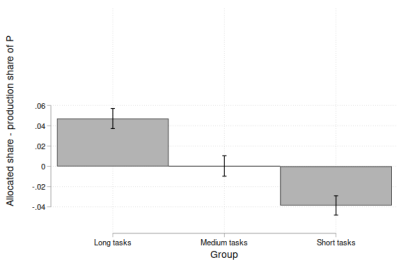
	Task length treatment Production	Ability treatment Production
Low tasks/min	-20.55*** (3.369)	-13.06*** (2.028)
High tasks/min	27.39*** (3.283)	14.26*** (2.016)
Worked hard on production	5.019*** (1.185)	4.285*** (0.589)
Worked hard on 10 tasks	-1.056 (1.161)	-1.214* (0.551)
Constant	68.73*** (2.331)	69.80*** (1.455)
Observations	257	243

Standard errors in parentheses

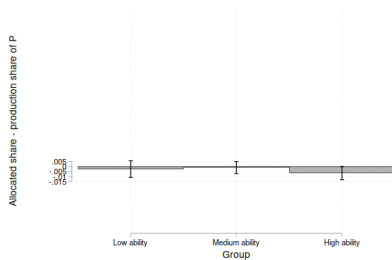
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Note: Self-reported effort demeaned.

Reduced-form results – spectator decisions by group



(a) Task length treatment



(b) Ability treatment

▶ Back to situations

Regression: Task length spectator decisions

	Excess income share to random participant in pair							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Situation, ref. equally long tasks</i>								
P had longer tasks	0.0574*** (0.00781)	0.0397*** (0.00719)	0.0400*** (0.00722)	0.0366*** (0.00773)				
P had shorter tasks	-0.0555*** (0.00733)	-0.0381*** (0.00697)	-0.0377*** (0.00699)	-0.0412*** (0.00812)				
Production share		-0.154*** (0.0303)	-0.154*** (0.0305)	-0.151*** (0.0326)		-0.144*** (0.0313)	-0.145*** (0.0316)	-0.142*** (0.0341)
Relative difficulty					0.0267*** (0.00293)	0.0189*** (0.00277)	0.0188*** (0.00277)	0.0187*** (0.00297)
Constant	0.00473 (0.00607)	0.0828*** (0.0146)	0.0851*** (0.0160)	0.0774*** (0.0169)	0.00692 (0.00580)	0.0795*** (0.0149)	0.0822*** (0.0163)	0.0719*** (0.0170)
Observations	1210	1210	1210	1210	1210	1210	1210	1210
Participant fixed effect	no	no	no	yes	no	no	no	yes
Demographic controls	no	no	yes	no	no	no	yes	no
Session fixed effect	yes	yes	yes	no	yes	yes	yes	no

Standard errors are clustered on participant level. Clustered standard errors in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Regression: Ability spectator decisions

	Excess income share to random participant in pair							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Situation, ref. equal ability</i>								
P had lower ability	0.00137 (0.00719)	-0.00516 (0.00714)	-0.00496 (0.00716)	-0.00448 (0.00787)				
P had higher ability	-0.00477 (0.00779)	0.00185 (0.00651)	0.00202 (0.00662)	0.00246 (0.00781)				
Production share		-0.103** (0.0476)	-0.102** (0.0476)	-0.0938* (0.0516)		-0.105** (0.0470)	-0.103** (0.0470)	-0.0966* (0.0514)
Relative difficulty					0.00191 (0.00291)	-0.00230 (0.00226)	-0.00225 (0.00224)	-0.00238 (0.00248)
Constant	-0.00762 (0.00606)	0.0448* (0.0246)	0.0243 (0.0248)	0.0437 (0.0273)	-0.00874** (0.00439)	0.0447* (0.0231)	0.0241 (0.0233)	0.0445* (0.0256)
Observations	1170	1170	1170	1170	1170	1170	1170	1170
Participant fixed effect	no	no	no	yes	no	no	no	yes
Demographic controls	no	no	yes	no	no	no	yes	no
Session fixed effect	yes	yes	yes	no	yes	yes	yes	no

Standard errors are clustered on participant level. Clustered standard errors in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Regression: Task length stakeholder decisions

	Excess income share to self							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Situation, ref. equally long tasks</i>								
P had longer tasks	0.0828*** (0.0206)	0.0476** (0.0201)	0.0454** (0.0194)	0.0252*** (0.00824)				
P had shorter tasks	-0.0214* (0.0129)	0.0154 (0.0161)	0.0138 (0.0160)	0.000523 (0.00861)				
Production share		-0.336*** (0.0674)	-0.349*** (0.0667)	-0.307*** (0.0514)		-0.342*** (0.0699)	-0.351*** (0.0694)	-0.290*** (0.0534)
Relative difficulty					0.0238*** (0.00598)	0.00586 (0.00700)	0.00650 (0.00715)	0.00767*** (0.00259)
Constant	0.0300 (0.0213)	0.196*** (0.0371)	0.241*** (0.0702)	0.210*** (0.0251)	0.0531** (0.0224)	0.222*** (0.0405)	0.262*** (0.0709)	0.211*** (0.0269)
Observations	1250	1250	1250	1250	1250	1250	1250	1250
Participant fixed effect	no	no	no	yes	no	no	no	yes
Demographic controls	no	no	yes	no	no	no	yes	no
Session fixed effect	yes	yes	yes	no	yes	yes	yes	no

Standard errors are clustered on participant level. Clustered standard errors in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

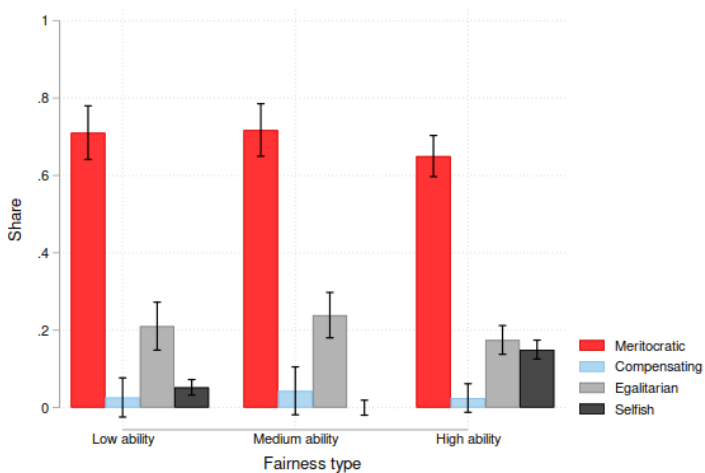
Regression: Ability stakeholder decisions

	Excess income share to self							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Situation, ref. equal ability</i>								
P had lower ability	-0.00430 (0.0184)	-0.0323 (0.0233)	-0.0279 (0.0214)	0.00563 (0.00736)				
P had higher ability	0.00183 (0.0155)	0.0326** (0.0153)	0.0298** (0.0143)	0.0120 (0.00964)				
Production share		-0.504*** (0.173)	-0.495*** (0.153)	-0.195*** (0.0508)		-0.526*** (0.187)	-0.517*** (0.165)	-0.189*** (0.0506)
Relative difficulty					-0.00133 (0.00834)	-0.0215* (0.0120)	-0.0195* (0.0107)	-0.00110 (0.00357)
Constant	0.0424* (0.0253)	0.299*** (0.0955)	0.411*** (0.102)	0.141*** (0.0265)	0.0416* (0.0249)	0.311*** (0.0978)	0.423*** (0.104)	0.144*** (0.0253)
Observations	1210	1210	1210	1210	1210	1210	1210	1210
Participant fixed effect	no	no	no	yes	no	no	no	yes
Demographic controls	no	no	yes	no	no	no	yes	no
Session fixed effect	yes	yes	yes	no	yes	yes	yes	no

Standard errors are clustered on participant level. Clustered standard errors in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

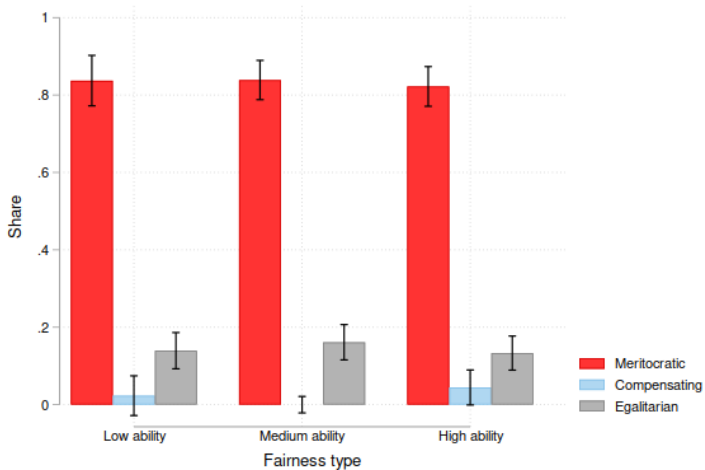
Stakeholders by own ability



Note: The bars show 95 percent confidence intervals using bootstrapped standard errors.

Task length stakeholders

Spectators by own ability



Note: The bars show 95 percent confidence intervals using bootstrapped standard errors.