

In search of unanimously preferred income distributions. Evidence from a choice experiment

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- When can we reach a consensus?

- What breaks the consensus?

 - Known rank and Pareto-dominant choices

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Main questions of the study

People care about how income is distributed within a firm

- ▶ Income comparisons can affect job satisfaction, productivity, cooperation, and earnings (Card et al., 2012; Breza et al., 2017)

In which context are larger inequality within small groups (e.g. work- groups) acceptable or not?

Is there a situation where everybody prefers one distribution over another?

How does it depend on:

- ▶ The relative **form** that inequality take?
- ▶ The **degree of rank-uncertainty** within the group?
- ▶ The manipulation of **deservingness**?

The Experiment

Analyzes a **series of choices between two income distributions (Projects)**:

- ▶ Focus on **two broad classes of choices**:

The Experiment

Analyzes a **series of choices between two income distributions (Projects)**:

- ▶ Focus on **two broad classes of choices**:
Constant-efficiency choices: Subjects can reduce inequality while keeping the total payoff constant (200 points=1€)

	Choice 1		Choice 2		Choice 3		Choice 4	
	A	B	A	B	A	B	A	B
Person 1	1400	1000	1300	1000	1000	1000	1400	1100
Person 2	900	800	850	800	800	800	1200	800
Person 3	600	600	800	600	600	500	600	700
Person 4	300	500	200	500	600	500	600	700
Person 5	100	400	150	400	150	300	300	600
Total	3300	3300	3300	3300	2900	2900	3850	3850
Std. dev.	513	241	484	241	340	311	502	199

- **Pareto-dominant choices:** All subjects are weakly *better off* by choosing the high inequality distribution

	Choice 5		Choice 6		Choice 7	
	A	B	A	B	A	B
Person 1	1400	1000	3000	1000	1200	1000
Person 2	900	800	800	800	1000	800
Person 3	600	600	600	600	800	600
Person 4	500	500	500	500	700	500
Person 5	400	400	400	400	400	400
Total	3800	3300	5300	3300	4100	3300
Std. dev.	404	241	1095	241	303	241

Does preference for higher relative inequality depend on **certainty about position**?

Subjects choose twice:

- ▶ **Behind the veil of ignorance** (position is uncertain)
- ▶ **Rank is revealed** (position is certain)

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Vary **deservingness of attaining a rank**

- ▶ Rank is determined **randomly** for half of the subjects (Luck treatm.)
- ▶ Rank is determined by **relative performance** in a real effort task for the other half (merit treatment)

Existing Literature

- ▶ **Choice experiments** that analyzes choices between a set of income distributions
 - ▷ E.g. Engelmann and Strobel (2007) show that most subjects are motivated by maximin preferences and efficiency concerns
 - ▷ We focus less on *heterogeneity* in social preferences but more which choice can yield *unanimity* and in which context
- ▶ **Merit concerns** can affect distributive preferences
 - ▷ Dictators care about origin of income (Engel, 2011)
 - ▷ People are more tolerant of inequality resulting from choice rather than luck (Cappelen et al., 2013)
 - ▷ Effort-based rank allocation decreases preferences for redistribution behind the veil of ignorance (Bjerk, 2016; Durante et al., 2014)

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This study **interacts merit concerns** with different degrees of **rank-certainty** by focusing on **discrete choices**

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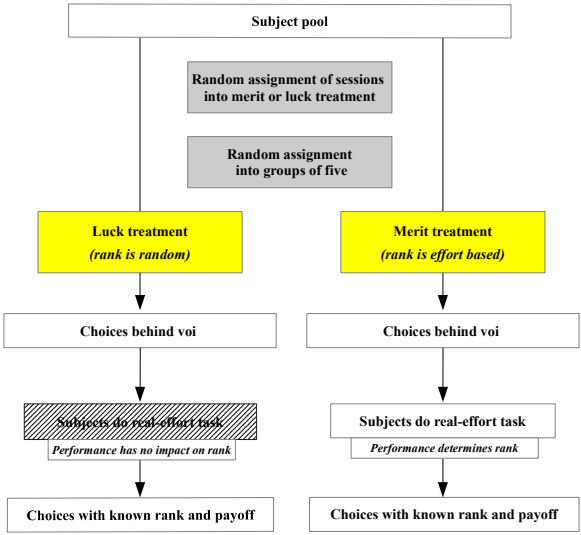
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Example of Choice behind the veil of ignorance

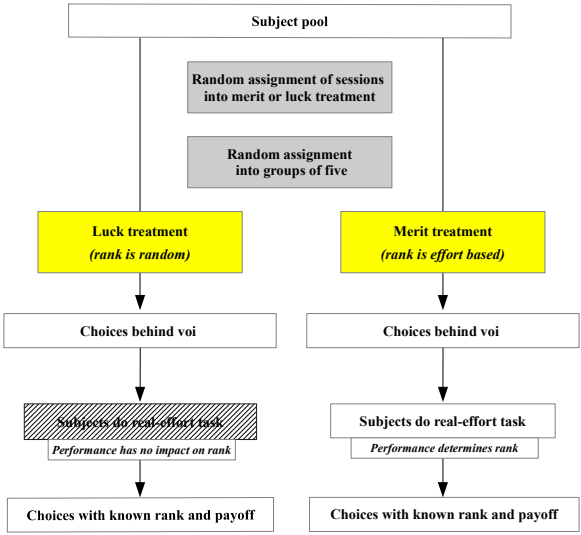
Faites un choix entre deux projets : A et B

Rappel : Votre place dans le groupe sera tirée au sort.

Membres du groupe	Gains avec projet A	Gains avec projet B
Personne 1	1400	1000
Personne 2	900	800
Personne 3	600	600
Personne 4	300	500
Personne 5	100	400

Quel est votre choix ?

- Projet A Projet B



The effort task

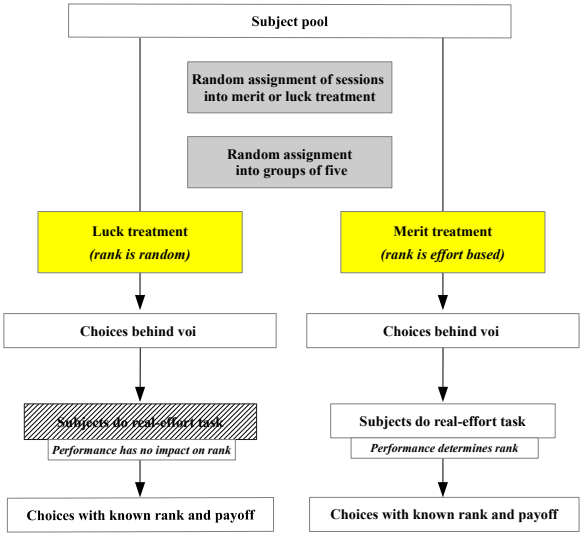
Task : recopier les mots

kezch, lfata, njhsg, cciit, vqycr, zebiw, trebh, mzoam, mqqbt, blch, wjncu, zenpy, qbybv, inepp, lxflt, grkle, skeqb, vxrbl, ujjrt, mhtmu, sngit, efvxi, pstvw, jgmjr, npxxy, fgqht, bbojx, zxavh, tqnad, kjwvf, khgas, uhufu, ezigh, osnwd, jedex, rjvuz, zyfxh, gawuv, fezeu, gndyq, zskgo, xjarg, oqrfq, loizw, pocho, mbhsy, jzcki, dayno, wanzam, ezvrr, gpaue, dwrhj, qarwv, ubzql, oyofa, nrbye, roitk, wodgt, kicux, apdta, qxjsu, jrwie, zbria, yibci, wanry, eyocd, iduhv, pbdun, zsvhu, encuw, xsthf, twyex, cmhvu, bbhys, tidwy, jehao, llwxb, zutee, gizjd, fyzno, cwyyv, jbygj, xdaxh, moswq, qzbnv, eysav, soyyv, jzytm, tiwch, pfgis, svghh, njhvf, yutqm, rwnbu, ucwsv, yjyd, vbxmf, xscid, gztqg, iqbtu, ovkrw, svhtu, seqjj, klzjl, wisyu, xboyx, sabga, faeis, fygfj, zjflv, etasv, wtggr, vdvrd, tulgt, issmy, agfmd, garmm, fzaxk, gibbs, dwaej, akvnf, dizyk, ghbha, okhmf, rpojz, wednm, istxt, gixke, gwvfp, vnfew, wgysh, utuzy, arqfg, sgkdq, lqmdr, wdvda, dngpx, pgsxf, lqgim, gspbh, vjbvd, mxqdc, qdlyu, pxlov, snrfw, xsgvt, jtdda, heeos, fliefv, zgozd

Veuillez recopier les mots ci-dessus

Il vous reste 18 secondes

Figure: Screenshot of the real effort task



Example of Choice with known rank

Membres du groupe	Gains avec projet A	Gains avec projet B
Personne 1	3000	1000
Personne 2	800	800
Personne 3	600	600
Personne 4	500	500
Personne 5	400	400

Quel est votre choix ?

- Projet A Projet B
-

Sessions

Computerized experiment at the LEEP using C#

- ▶ Average duration: 30 minutes
- ▶ Average gain: 16€ (including show-up fee)

Instructions were read aloud and could be consulted at any time

18 Sessions with 320 subjects

- ▶ 8 sessions with luck group and 10 sessions with merit group

Standard laboratory subject pool recruited using ORSEE (Greiner, 2004)

◀ Characteristics

◀ Incentivization of choices

Summary of Design

Between / Within	Behind veil of ignorance 8 Choices	Rank revealed 6 Choices
Random rank (Luck group)	Behind veil of ignorance + Random rank	Rank revealed + Random rank
Effort-based rank (merit group)	Behind veil of ignorance + Effort-based rank	Rank revealed + Effort-based rank

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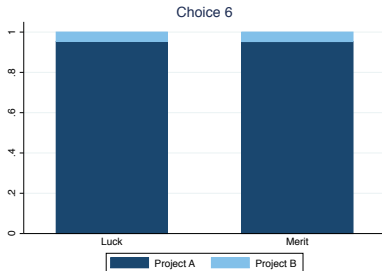
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Pareto-dominant choice made behind the veil of ignorance

Subjects almost unanimously favor Pareto-dominant distribution (Project A)



Group Members	Payoff Project A	Payoff Project B
Person 1	3000	1000
Person 2	800	800
Person 3	600	600
Person 4	500	500
Person 5	400	400

This holds true for all Pareto-dominant choices

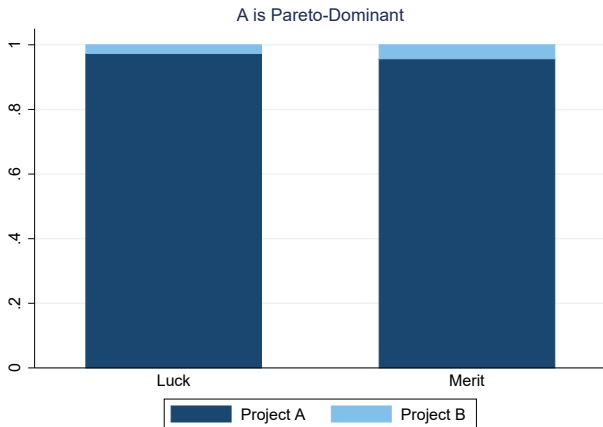


Figure: Pooled choices

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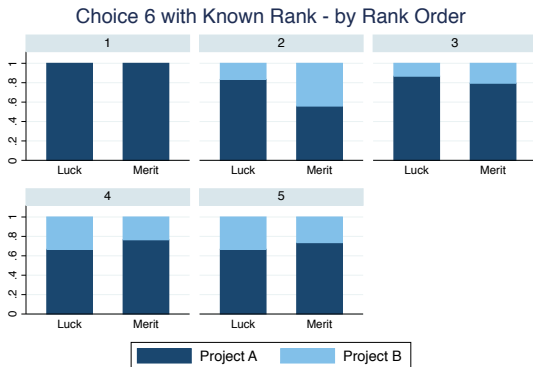
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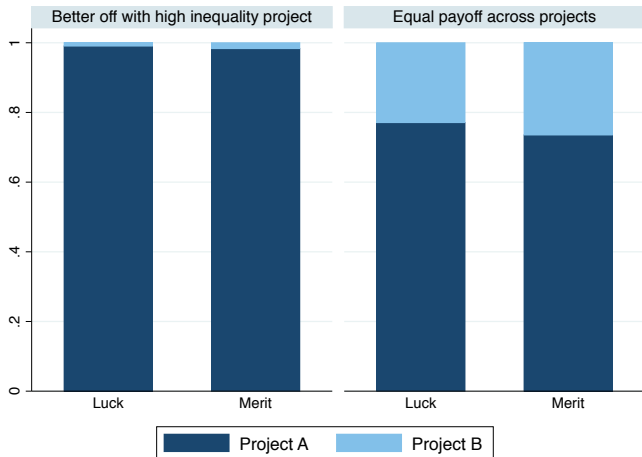
A smaller majority for Pareto-dominant inequality with known rank



A is more unequal

Group Members	Payoff Project A	Payoff Project B
Person 1	3000	1000
Person 2	800	800
Person 3	600	600
Person 4	500	500
Person 5	400	400

Similar results when pooling Pareto-dominant known rank choices

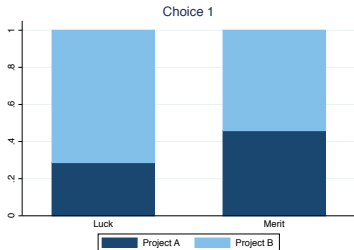


22% of subjects *always* burn income at the top **without any redistributive effects** if their payoff is unaffected

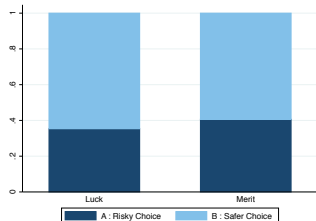
Constant efficiency choices made behind the veil of ignorance

About 75% of the subjects in the **luck treatment** prefer low inequality, against 55% in the **merit treatment**.

Decision for group

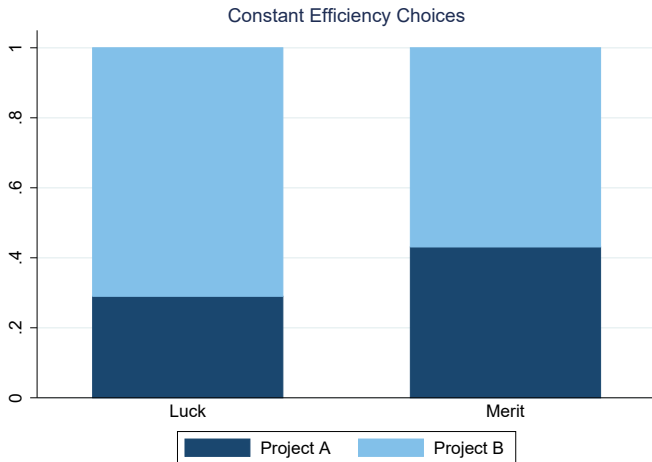


Decision as a pure lottery

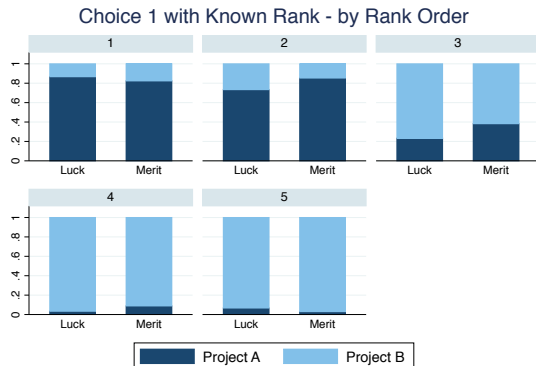


Group Members	Payoff Project A	Payoff Project B
Person 1	1400	1000
Person 2	900	800
Person 3	600	600
Person 4	300	500
Person 5	100	400

Similar results after pooling all constant-efficiency choices behind the veil of ignorance

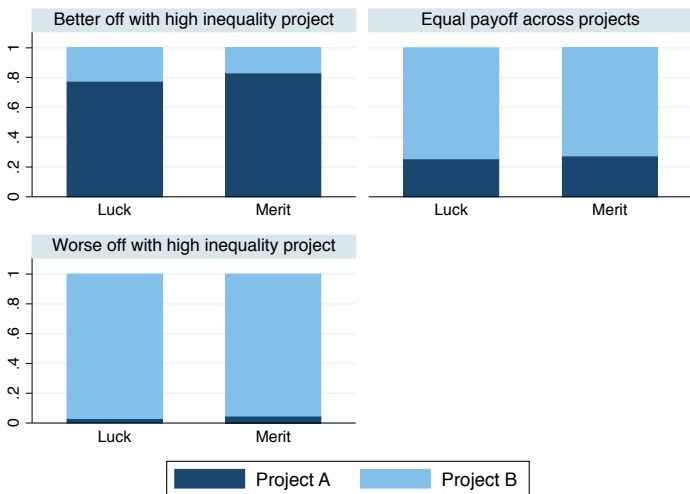


With known rank: payoff maximization but also altruistic individuals



Group Members	Payoff Project A	Payoff Project B
Person 1	1400	1000
Person 2	900	800
Person 3	600	600
Person 4	300	500
Person 5	100	400

Similar results after pooling all constant-efficiency choices with known rank



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Regression summarizing the results

	Veil of ignorance			Known position		
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Dep. Var. = 1 if Project B (low inequality) is chosen</i>						
Merit	-0.0732*** (0.0227)	0.0718 (0.0646)	0.0663 (0.0594)	-0.00601 (0.0202)	0.0260 (0.0339)	0.0299 (0.0335)
Constant Efficiency	0.566*** (0.0194)	0.648*** (0.0474)	0.633*** (0.0433)	0.173*** (0.0185)	0.203*** (0.0300)	0.203*** (0.0296)
Merit * Constant Efficiency		-0.161** (0.0695)	-0.154** (0.0654)		-0.0562 (0.0422)	-0.0584 (0.0420)
(Payoff B - Payoff A)/Payoff A				0.526*** (0.112)	0.525*** (0.112)	0.529*** (0.112)
Controls	No	No	Yes	No	No	Yes
Observations	2240	2240	2240	1920	1920	1920
Pseudo R^2	0.343	0.346	0.393	0.356	0.357	0.360

Robust standard errors clustered at the individual level in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Figure: Logit marginal effects of pooled regressions over all choices

Significant merit treatment effect is *only* found behind the veil of ignorance. This is *not* explained by confidence or overconfidence in task

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- ▶ Behind the veil of ignorance higher inequality distributions are unanimously preferred if they Pareto-dominate the alternatives
- ▶ Merit only matters behind the veil of ignorance and if efficiency is constant across alternatives
- ▶ Once rank is known the **main driver of choice is maximization of own payoff**
- ▶ 25% of the subjects engage in money burning at the top and 20% are willing to redistribute their own income to the bottom
- ▶ **Possible interpretation:** Money burning only arises when **mobility within the group is blocked**

Thank you for your attention!

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Incentivization

Subjects make 8 incentivized choices behind the veil of ignorance and 6 with revealed rank

1. One choice out of eight (six) is chosen randomly for each group
2. For each group, one player is randomly chosen to become the payoff determining player
3. The distribution chosen by that player for the randomly drawn choice will become payoff relevant for the whole group

Descriptive statistics on the subject pool

	(1) Control	(2) Treated	(3) Overall	(4) Diff.	(5) p-value t-test difference in means
Age	24.88	25.38	25.15	-0.502	0.425
Secondary Degree	0.713	0.771	0.744	-0.057	0.243
Female	0.533	0.541	0.537	-0.008	0.889
Employed	0.173	0.212	0.194	-0.038	0.387
Student	0.687	0.647	0.666	0.040	0.455
Economics background	0.413	0.406	0.409	0.007	0.893
In a relationship	0.313	0.365	0.341	-0.051	0.335
Political Orientation	3.811	3.532	3.656	0.278	0.335
Risk loving (6 lotteries)	3.693	3.735	3.716	-0.042	0.816
Risk loving (2 lotteries)	0.647	0.594	0.619	0.053	0.336
Subjective risk measure	6.193	6.229	6.213	-0.036	0.883
<i>N</i>	150	170	320	320	

Confidence or overconfidence do not explain the results

	Constant Efficiency (excl. Choice 3)			Choice 3		
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Dep. variable = 1 if Project B (low inequality) is chosen</i>						
Predicts rank 2	0.0710 (0.0697)		0.0769 (0.0702)	0.0385 (0.0786)		0.0470 (0.0787)
Predicts rank 3	0.0578 (0.0741)		0.0684 (0.0728)	0.390*** (0.0933)		0.405*** (0.0908)
Predicts rank 4	-0.0540 (0.164)		-0.0548 (0.162)	0.140 (0.181)		0.144 (0.184)
Rank		-0.0202 (0.0204)	-0.0231 (0.0201)		-0.0177 (0.0260)	-0.0301 (0.0249)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	510	510	510	170	170	170
Pseudo R^2	0.117	0.115	0.120	0.179	0.102	0.185

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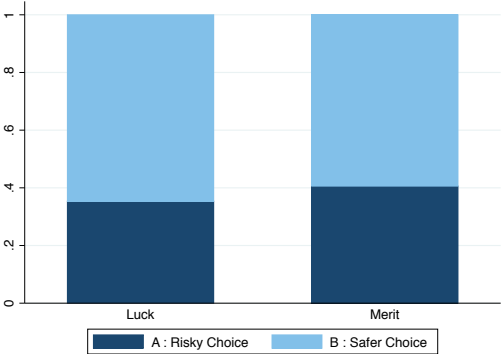
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Eckel and Grossman risk aversion

Lottery	Low gain	High gain	Mean	St. Dev.	r	Choice share
Lottery 1	140	140	140	0	$3.46 < r$	10.00%
Lottery 2	120	180	150	30	$1.16 < r < 3.46$	11.25%
Lottery 3	100	220	160	60	$0.72 < r < 1.16$	31.88%
Lottery 4	80	260	170	90	$0.5 < r < 0.72$	11.56%
Lottery 5	60	300	180	120	$0 < r < 0.5$	14.69%
Lottery 6	10	350	180	170	$r < 0$	20.63%



Lottery A	Lottery B
1400	1000
900	800
600	600
300	500
100	400

Phrasing of rank determination

Only shown to the control group

- ▶ Votre position dans le projet de ce participant sera déterminée au hasard.

Only shown to the treatment group

- ▶ Votre bonus et celui des autres membres de votre groupe seront déterminés par votre performance à une tâche simple réalisée à la fin de cette partie. Le plus performant de votre groupe obtiendra le bonus le plus gros, le deuxième plus performant obtiendra le deuxième plus gros bonus et ainsi de suite.

Summary statistics of self-reported attitudes

Variable	Mean	Std. Dev.	Min.	Max.	Obs.
Satisfaction	6.638	2.167	0	10	320
Subjective risk	6.213	2.177	0	10	320
Diminish inequalities	8.577	1.811	1	10	320
Rich deserve revenues	5.603	2.339	0	10	320
Poor make no effort	2.978	2.56	0	10	320
Political orientation	3.656	2.266	0	10	250

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Group Members	Project A	Project B
Person 1	1300	1000
Person 2	850	800
Person 3	800	600
Person 4	200	500
Person 5	150	400
Total	3300	3300
Standard deviation	483,99	240,83
GINI	0,36	0,18
Part 2 choices (veil of ignorance)	37.19%	62.81%
if control	30.67 %	69.33 %
if treatment	42.94 %	57.06%
Part 3 choices (known position)	47.19%	52.81 %
if control	44.67 %	55.33 %
if treatment	49.41%	50.59%

Table: Choice to choose between two Projects (Choice 2)

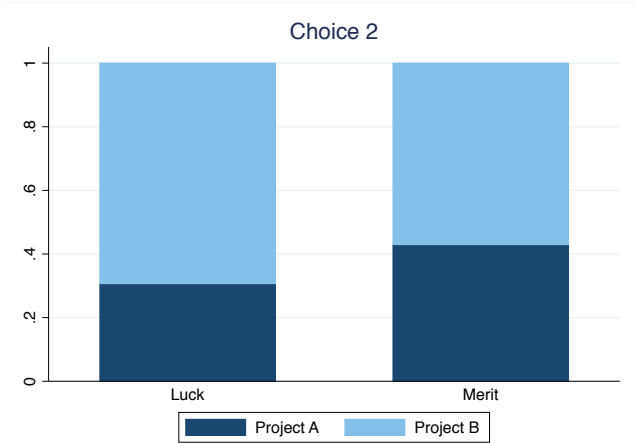
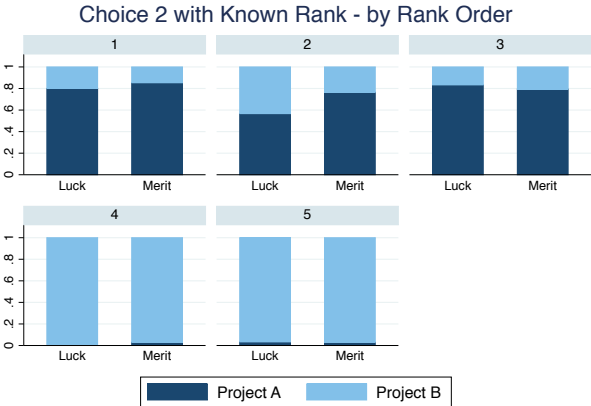


Figure: Choice 2 behind the veil of ignorance



A is more unequal

Figure: Choice 2 with known rank

Group Members	Project A	Project B
Person 1	1000	1000
Person 2	800	800
Person 3	600	500
Person 4	350	300
Person 5	150	300
Total	2900	2900
Standard deviation	340,22	311,45
GINI	0,29	0,21
Part 2 choices (veil of ignorance)	32.50%	67.50%
if control	24.67%	75.33%
if treatment	39.41%	60.59%
Part 3 choices (known position)	44.38%	55.63%
if control	44.00%	56.00%
if treatment	44.71%	55.29%

Table: Choice to choose between two projects (Choice 3)

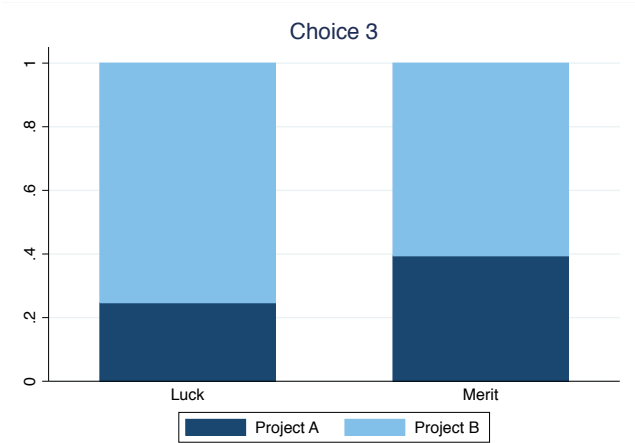
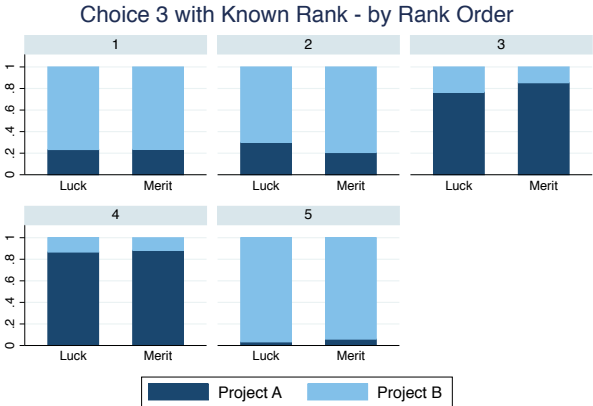


Figure: Choice 2 behind the veil of ignorance



A is more unequal

Figure: Choice 2 with known rank

Group Members	Project A	Project B
Person 1	1400	1100
Person 2	1200	800
Person 3	600	700
Person 4	350	650
Person 5	300	600
Total	3850	3850
Standard deviation	502,00	198,75
GINI	0,32	0,12
Part 2 choices (veil of ignorance)	38.44%	61.56%
if control	32.00%	68.00%
if treatment	44.12%	55.88%
Part 4 choices (hypothetical)		
– <i>Person 3 in A and 5 in B</i>	34.06%	65.94%
if control	289.33%	70.67%
if treatment	38.24%	61.76%

Table: Choice to choose between two projects (Choice 4)

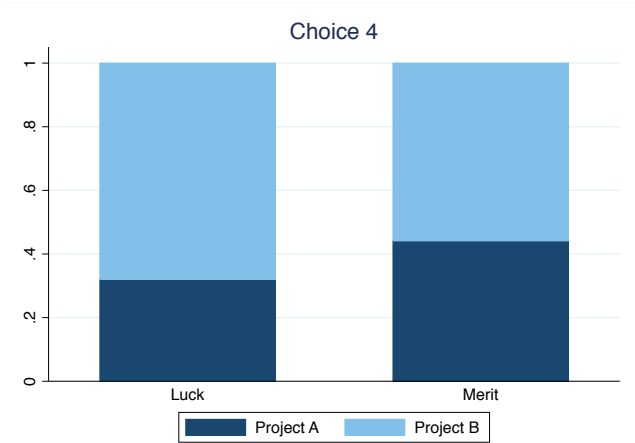


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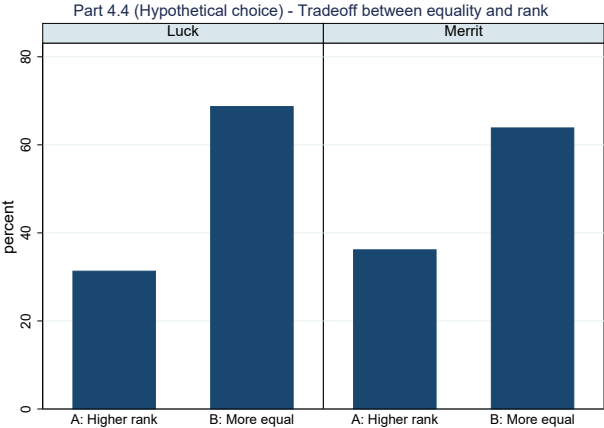


Figure: Choice 2 with known rank

Group Members	Project A	Project B
Person 1	1400	1000
Person 2	900	800
Person 3	600	600
Person 4	500	500
Person 5	400	400
Total	3800	3300
Standard deviation	403,73	240,83
GINI	0,23	0,18
Percent of choices (behind Vol)	97.14%	2.86%
if control	98.26%	1.74%
if treatment	96.15%	3.85%
Percent of choices (known rank)	85.71%	14.29%
if control	89.57%	82.31%
if treatment	10.43%	17.69%

Table: Choice to choose between two projects (Choice 5)

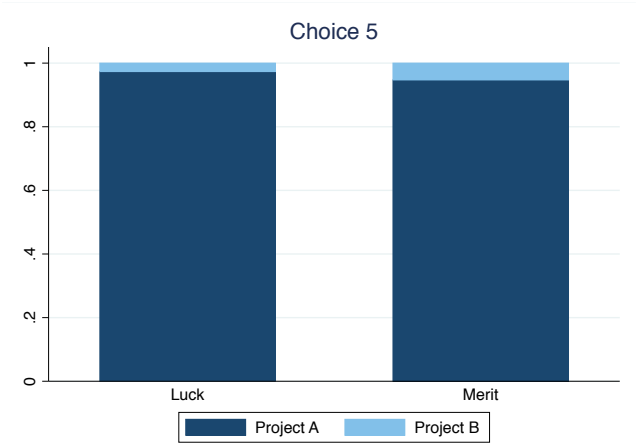
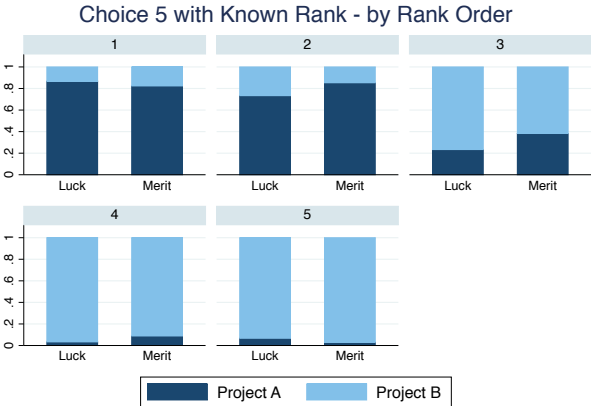


Figure: Choice 2 behind the veil of ignorance



A is more unequal

Figure: Choice 2 with known rank

Group Members	Project A	Project B
Person 1	3000	1000
Person 2	800	800
Person 3	600	600
Person 4	500	500
Person 5	400	400
Total	5300	3300
Standard deviation	1049,73	240,83
GINI	0,52	0,18
Part 2 choices (veil of ignorance)	95.31%	4.69%
if control	95.33%	4.67%
if treatment	95.29 %	4.71%
Part 3 choices (known position)	78.75%	21.25 %
if control	80.67%	19.33%
if treatment	77.06%	22.94%

Table: Choice to choose between two projects (Choice 6)

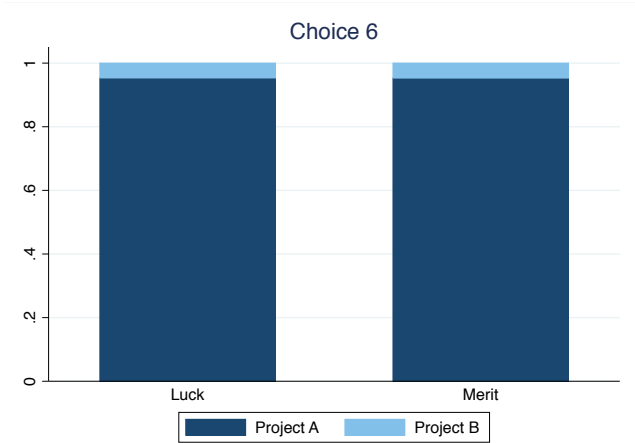
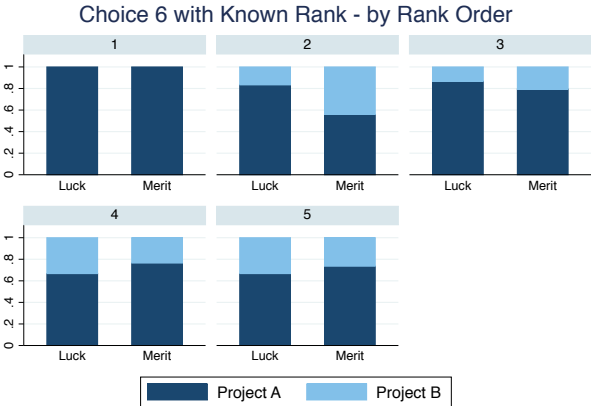


Figure: Choice 2 behind the veil of ignorance



A is more unequal

Figure: Choice 2 with known rank

Group Members	Project A	Project B
Person 1	1200	1000
Person 2	1000	800
Person 3	800	600
Person 4	700	500
Person 5	400	400
Total	4100	3300
Standard deviation	303,32	240,83
GINI	0,19	0,18
Part 2 choices (veil of ignorance)	98.13%	1.88%
if control	99.33%	0.67%
if treatment	97.06%	2.94%
Part 3 choices (known position)	94.38%	5.63 %
if control	94.00%	6.00%
if treatment	94.71%	5.29%

Table: Choice to choose between two projects (Choice 7)

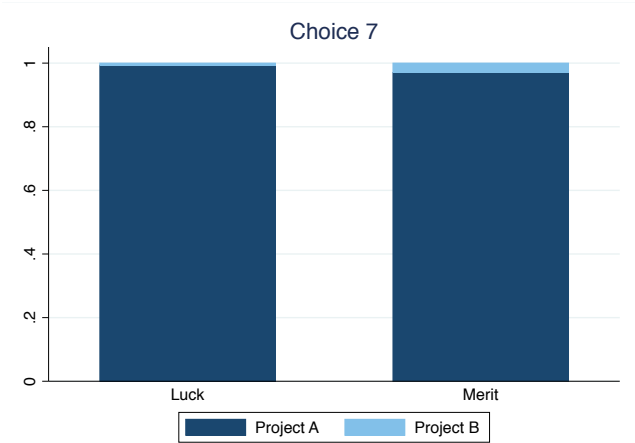
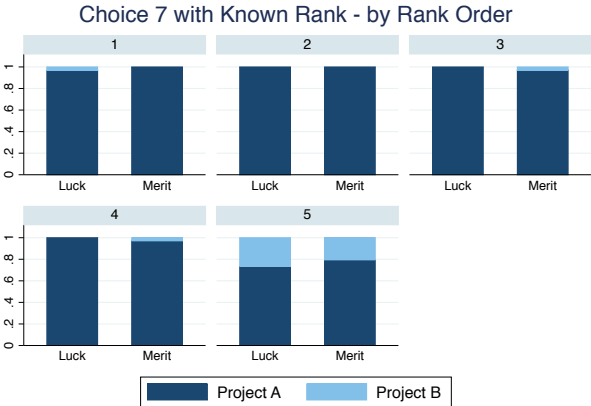


Figure: Choice 2 behind the veil of ignorance



A is more unequal

Figure: Choice 2 with known rank

Group Members	Project A	Project B
Person 1	1200	800
Person 2	1100	700
Person 3	1000	600
Person 4	900	500
Person 5	800	400
Total	5000	3000
Standard deviation	158,11	158,11
GINI	0,08	0,13
Part 2 choices (veil of ignorance)	96.56%	3.44%
if control	97.33%	2.67%
if treatment	95.88%	4.12%
Part 4 choices (hypothetical)		
– <i>Person 5 in A and 1 in B</i>	80.94%	19.06%
if control	78.24%	21.76%
if treatment	79.23%	20.77%

Table: Choice to choose between two projects (Choice 8)

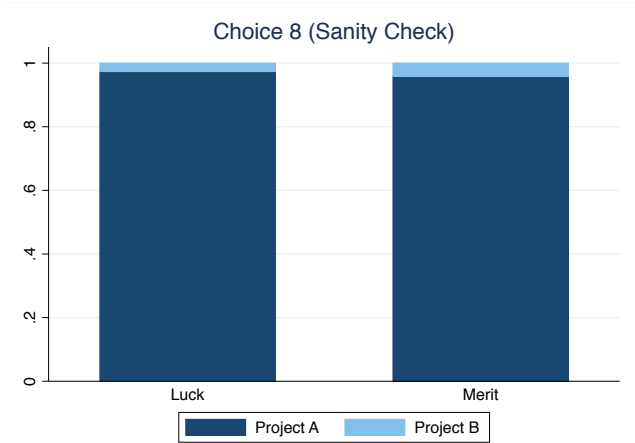


Figure: Choice 2 behind the veil of ignorance